THE OIL WEEKLY

ENGINEERING « NEWS » STATISTICS

EDITORIAL STAFF

WARREN L. BAKER
Editor
J. KENT RIDLEY
Managing Editor

ASSOCIATE EDITORS

L. J. LOGAN — BRAD MILLS
WM. V. GROSS

DISTRICT EDITORS

B. F. LINZ.....Washington
GRADY TRIPLETT, FRANK TAYLOR.....Tulsa
H. H. KING.....Fort Worth
EARL S. POST.....San Antonio
R. W. BYRAM.....Austin
CHAS. LEYENDECKER.....Houston

PUBLISHED BY

THE GULF PUBLISHING COMPANY
HOUSTON, TEXAS

R. L. DUDLEY, *President*
A. L. BURNS, *General Manager*
S. W. ROBINSON, *Editorial Director*

Staff correspondents at all important points.

Member Audit Bureau of Circulation
Member Associated Business Papers, Inc.

BRANCH OFFICES

NEW YORK.....250 Park Ave.
PITTSBURGH.....Vandergrift Bldg.
CHICAGO.....332 S. Michigan Ave.
LOS ANGELES...W. W. Wilson Bldg.
TULSA.....Hunt Bldg.
FORT WORTH.W. T. Waggoner Bldg.
SAN ANTONIO.....233 Bedell Bldg.
WASHINGTON.....Albee Bldg.

ADVERTISING STAFF

DICK SWINSKY.....New York
A. W. BROWNELL, JR.....New York
C. A. WARDLEY.....Pittsburgh
H. G. FITZPATRICK.....Chicago
J. F. CARTER, JR.....Tulsa
JAY CURTS, JR.....Los Angeles
CHAS. WYATT.....Houston

CIRCULATION DEPARTMENT

J. T. WAGONER.....Manager

SPECIALIZED OIL JOURNALS
Published by
THE GULF PUBLISHING COMPANY

The Oil Man's Calendar

JULY 27-28	West Virginia Oil and Natural Gas Association, Charleston, West Virginia.
SEPT. 14-16	National Petroleum Association, Hotel Traymore, Atlantic City.
27 OCT. 2	American Association of Petroleum Geologists, Mid-Year Meeting, El Paso, Texas.
OCT. 6-7	American Institute of Mining & Metallurgical Engineers, Fall Meeting, Petroleum Division, San Antonio, Texas.
10-14	American Gas Association, Atlantic City, New Jersey.
12-13	Indiana Independent Petroleum Association, Hotel Severin, Indianapolis, Indiana.
18	National Stripper Well Association and Oklahoma Stripper Well Association, Annual Meetings, Tulsa, Oklahoma.
19-21	Independent Petroleum Association of America, Tulsa, Oklahoma.
20-21	American Institute of Mining & Metallurgical Engineers, Petroleum Division and Industrial Minerals Division, Los Angeles, California.
27-29	Annual Convention, Texas Division, Mid-Continent Oil & Gas Assn., San Antonio, Texas.
NOV. 14-18	American Petroleum Institute, (Annual), Stevens Hotel, Chicago.
DEC.	Mid-Continent Oil & Gas Assn., Standing Tax Committees, Dallas, Texas.

Contents « July 4, 1938

Volume 90, Number 4

The Changing Panorama.....13-14

Feature Section.....15-38

Accumulating Recovery Signs Encourage Oil Industry..... 15
BY L. J. LOGAN

Significance of Recent Illinois Basin Discoveries..... 18
BY GAIL F. MOULTON

Core Testing by Radioactive Methods..... 26
BY H. LANDSBERG AND A. I. INGHAM

Records . . . Their Place and Value in Compression Station.... 30
BY FRANK TAYLOR

Choking Practice Experience Dictates the Best Method..... 36
BY BRAD MILLS

News Section and News Index..... 43

Men in the Industry's News..... 41

World Developments..... 39

Squeaks from the Bull Wheel..... 81

New Products for the Field..... 76

Published every Monday. Single Copies 15 cents (Special Issues 50c). Subscription price: domestic and foreign, $2.00 a year; 2 years $3.00. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil industry or the manufacturing and distribution of oil field supplies. Advertising rates on application.

Copyrighted 1938, by The Gulf Publishing Company.

THERE'S A REASON WHY
There's a reason why so many operators choose Parkersburg Derricks for the "tough" drilling jobs . . . for the wells that are to be drilled to record depths and locations in untried territory. It's because they're designed and built to do an outstanding job and have proved their worth by delivering superior performance in every field in the country.
The Parkersburg line offers derricks for both drilling and pumping operations . . . from 60′ to 136′ and ranging in capacity from 86,000 to 952,000 pounds. Each of them offers outstanding performance in its class and incorporates features that are found on no other similar type of derrick.
Complete stocks of almost every size of derrick are available in every active field. Why not call your nearest Parkersburg representative today and ask for details on the size you need for your next location. He's no farther away than your telephone.
Check Your Composite Catalog for complete specifications on Parkersburg Derricks.
THE PARKERSBURG RIG & REEL CO.
Parkersburg, W. Va., U. S. A.
PARKERSBURG
FAULTLESSLY FABRICATED DERRICKS

This Week's Panorama

THE oil industry outlook continues cheerful, in view of the Texas Railroad Commission's order last week continuing Sunday shutdowns of all fields of the state through July. Under the order, it is indicated that Texas output will conform closely with the Bureau of Mines estimate of demand.

Previously the commission had indicated it might lift Sunday as well as Saturday shutdowns. But in response to urging of numerous oil men, the Sunday closings were continued.

Situation Is Favorable

The industry now is in a considerably improved statistical position, with crude oil stocks 3.7 percent lower than a year ago, while another sharp reduction of over 2,000,000 barrels in gasoline stocks in the week ended June 25 brought those inventories down to a level only 9.4 percent above a year ago. Crude oil production in that same week was 12.6 percent lower than in the comparable week last year, while crude runs to stills were 6.5 percent lower than a year before. Fuel oil stocks showed a further seasonal increase, and represent an unfavorable statistical factor, being now 37.2 percent larger than a year ago.

Markets Continue Firm

The industry's markets have continued generally firm, with crude prices steady and gasoline, kerosene, and tractor fuel prices still gradually advancing. The gasoline prices at refineries have been consistently improving for several weeks, and have regained a sizable part of the ground lost last fall and winter.

Dividends Reflect Hopefulness

Oil company managements apparently have continued hopeful regarding prospects for this year as a whole. This is indicated by the exceptional maintenance of dividend payments. Although earnings in the first half of 1938 probably were around 30 percent lower than in the corresponding period of 1937, dividends for the first six months have been reduced only about 10 percent.

Nearly all oil companies have continued to pay dividends. About half have maintained the same payments as in 1937. Less than half have reduced payments. Several have increased their dividends.

Oil Workers Fortunate

Workers in the petroleum industry have continued to fare much better than those in many other lines, despite some curtailment of production and refining on account of the recession.

This was evidenced in the recently issued report of the Department of Labor covering conditions in March.

In the producing division of the industry, employment in March, 1938, was only 8/10 of 1 percent smaller than in March, 1937, while payrolls were 6.4 percent larger.

Average weekly earnings of $34.32 a person in March, 1938, were 7.2 percent larger than those of March, 1937, although the average hours worked per week were up only 9/10 of 1 percent, or to 40.2 hours weekly. For the average hourly earnings had increased 6.7 percent, to 84 cents an hour.

In the refining division of the industry, employment in March, 1938, was 2.3 percent smaller than in March, 1937. But payrolls were 8.3 percent larger than a year previously.

The average earnings per capita of $34.88 weekly in refining in March, 1938, were 10.9 percent larger than in March, 1937, despite a decrease, meanwhile, in the number of hours worked per week, as hourly wage rates were higher. The average of 36.2 hours worked per week in March, 1938, was 1/10 of 1 percent lower than in March, 1937. The average earnings of 97 cents an hour were 10.6 percent higher than one year previously.

Borrowing Attracts Attention

In some quarters, particular significance is being attached to the fact Shell Union Oil Corporation recently negotiated a 15-year loan of $25,000,000 from life insurance companies in a private transaction. The idea has been advanced that the loan may have been based in part on British war preparations. (This company is an American unit of the Royal Dutch-Shell group.)

However, the preparedness consideration probably represented only a minor factor in the financing, if any. For this loan was in line with similar financing lately undertaken or considered by several major American oil companies. (Standard Oil Company of New Jersey, for instance, a few weeks ago announced plans to raise $85,000,000 through debentures and notes, for expansion of properties and facilities.)

Officially, it was indicated that Shell Union would use the funds for development of properties, plant additions, and other corporate purposes.

In the oil country it is reported that the Shell company also is taking other steps to conserve its

cash position, planning to drill a substantial number of wells on properties for which payment will be out of oil production. Cash so conserved as well as that obtained through the loan would be available, it is figured, for acquiring other proved and undeveloped reserves and crude produced by others.

Whether deliberate or not, this cash-conserving policy would fit in with Britain's war preparation plans, making possible the building up of larger petroleum reserves, located in the United States.

It is pointed out that the Mexican expropriation and the threats of similar seizures in South American countries possibly have made United States oil reserves look more attractive than before to the British-Dutch interests.

The United States would be among the last countries to exclude foreign oil companies, it is reasoned, particularly those controlled in countries representing potential war allies.

World Oil Production Lower

The United States this year is playing its characteristic role of largely determining the trend of world production of crude oil. U. S. production has been running a little lower in 1938 than in 1937, and world output, similarly, has been slightly lower. (Both U. S. and world production in 1937 set new all-time records, the U. S. share of the 2 billion barrel total having been about 63 percent.)

In the first five months of this year, United States production was 3/10 of 1 percent smaller than in the similar period last year. But for the first half of the year, a somewhat larger decrease will be shown, because of drastic curtailment in June.

Other countries that are not producing as much this year as last year include Venezuela, third ranking nation, and Mexico. Venezuela consequently is not crowding U.S.S.R. as closely as before for second place in world rank. Mexico's decline this year, following the government's expropriation of the foreign-owned properties, has been alarmingly sharp. Whereas the country produced about 4,000,000 barrels in February, it apparently turned out only about 900,000 barrels in March and 750,000 barrels in April.

Motor Output: 1937-1938

The picture subsequently has changed, as United States production of motor vehicles is expected to be only about one-half as large in 1938 as in 1937. But—

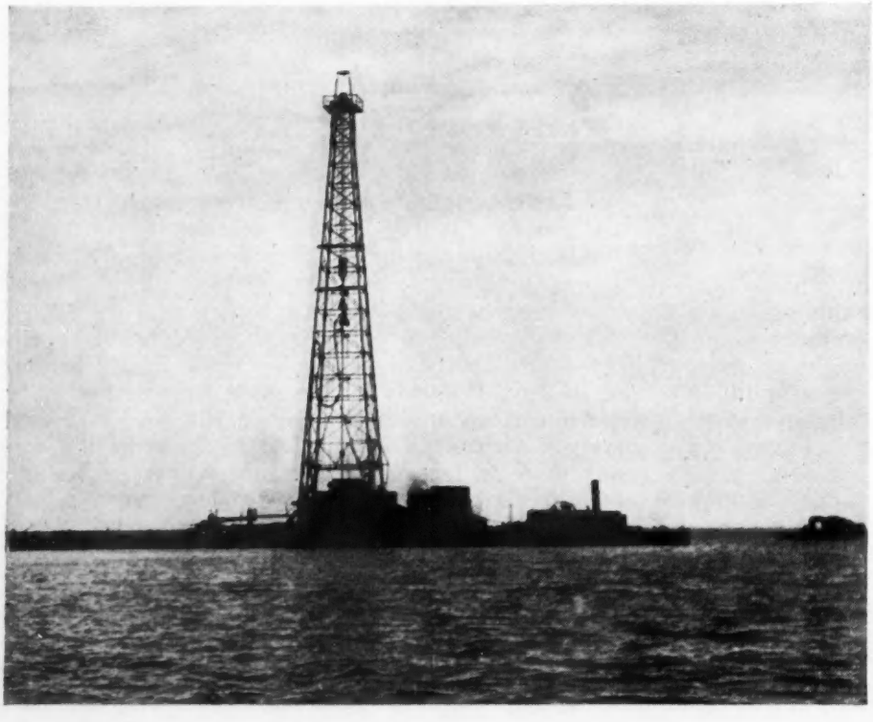
Exceeding that of 1929 by 1 percent, world production of motor vehicles in 1937 reached a new all-time peak of 6,352,525 automobiles, trucks, and buses, the Department of Commerce has reported. That was 9.5 percent more than 1936 output, and more than three times the depression minimum of production in 1932.

Production of 5,015,974 units in 1937 in the United States and Canada was 10 percent under the 1929 output. But in some countries, production was far larger in 1937 than in 1929. Germany produced 331,894 units in 1937, compared with 80,500 in 1929; Italy 66,000 against 54,100, Japan 14,430 against 215; Great Britain 490,366 against 239,832, and Russia 199,123 against 1706.

The indicated decline in U. S. production in 1938 is expected to result in a large decrease for the world. But the drop will be cushioned by continued relatively good sales in other countries.

Oil Country Outlook Bright

In his syndicated newspaper column recently, Roger W. Babson, Boston economist, called attention to the promising long-term outlook for the South and Southwest, where large industrial progress is under way, and said that the oil industry is greatly stimulating business in those districts. He described the oil regions of the South and Southwest as the fast growing sections of the United States.



A man-made island was used in drilling this test 2500 feet offshore in Red Fish Bay, near Aransas Pass, Texas. Retaining walls were built of strong piling and then filled with shell. It is Coast Line Oil Company's State 1, which required but a month to reach its contract depth of 7500 feet.

Accumulating Recovery Signs Encourage Oil Industry

Many now expect definite improvement . . . But oil demand trends indicate moderate operations still needed . . . Crude markets of states are shifting.

By L. J. LOGAN, Associate Editor

THE odds continue to increase on recovery vs. recession, as more signs of an upturn accumulate, while more business men and economists join those predicting better times ahead.

* * *

Better Business Expected

The marking down of steel prices is being interpreted as reflecting hope for new business. It is reasoned that so long as no business improvement was in sight, the steel companies had nothing to gain by lowering prices; but that now the price concessions are considered likely to stimulate sales.

The business barometers continue to show increasing industrial and commercial activity.

Naturally government officials are commenting as hopefully as possible on the business outlook, in order to aid the government program of trade stimulation. Typical was the prediction of Secretary of Commerce Roper that summer and fall would see a decided improvement in business; that the recession seems to be "scraping bottom."

However, numerous economists outside the government circles also have expressed opinions that a business revival is impending.

Colonel Leonard P. Ayres, vice president of Cleveland Trust Company, is among those now taking a hopeful attitude. Lately he has expressed the opinion there would be some improvement in business in the final quarter of this year, followed by additional moderate advances next year; that "we are now probably at or near the bottom of the present depression."

Concerning the expected last quarter improvement, however, Colonel Ayres said: ". . . it is not likely to be very marked, for pump priming is slow in getting under way, and after it does gain momentum, it is slow to produce stimulating effects." He also said that business trends would be affected materially by the course of business in other countries, where activity has been decreasing, and by the fate of the railroads, which are in a critical situation. He added that the indicated business revival would not likely be characterized by a venturing of capital into many new enterprises.

Further, Colonel Ayres made statements, in two different addresses, reflecting concern over the long-term implications of government stimulation of business, declaring that such methods could be continued for years, even if proved to be economically unsound, because of the nation's rich resources; and that a political party in power might indefinitely remain dominant through repeatedly creating artificial prosperity.

He referred to pump priming as "the most perfect device ever invented for winning elections and staying in office," and indicated that politicians would fight to retain the device. Under pump priming, he said, politicians take over activities formerly exercised by bankers and investors. And "we already have traveled a long distance upon the road that leads to control of business by persons whose principal occupation is not industry, finance, agriculture, or trade, but the winning of elections."

* * *

How Sharp Recovery?

In view of the strong indications that a recovery of some kind may be now definitely under way, the question arises as to how sharp and how lasting the improvement might prove.

Some time ago, before the recovery outlook had appreciably brightened, the Bank for International Settlements, at its annual general meeting at Basle, Switzerland, issued a report, through its president, J. W. Beyen, that touched upon these points.

The report reflected opinion that recovery from the present slump, when it occurs, might be more rapid and more general than that following the 1929-1932 depression. This view was based on the existence now of stronger private and public financial conditions and also on the fact agricultural situations are better.

In that same report, also, were opinions that may be re-examined

now for their possibilities of shedding some light on the durability of the recovery that now is promised.

In that connection, the implications are not so optimistic. For the currently promised recovery would be based at least to some extent on the spending-lending program of the government. And the bankers' report declared that events of recent years had proved the limited successfulness of governmental action in influencing economic developments, pointing to the American experiments along that line.

It was stated that the 1936-1937 recovery was faulty because of being based to a large extent on government spending, while there was a low volume of private financing of business. Business activity reached high levels, it was recalled, but when government stimulation was reduced, there appeared to be insufficient impetus in regular private business activity to carry on the forward movement. Consequently, activity receded immediately after the slowing down of government action.

From that experience, it was concluded, the mere stimulation of consumption by government expenditures or sudden improvement in labor conditions does not provide a durable foundation for vigorous business.

On the contrary, it was asserted, "the main incentive to recovery over wide areas of the world is still the expectation of a sufficient margin of profit during a sufficiently long period."

* * *

Oil Demand Outlook

Although sentiment generally and in the oil industry has turned definitely more cheerful in the past few weeks, there is still reason for conservative operations at wells and refineries.

This is indicated by accompanying tables on actual demand for petroleum lately and expected demand in the next several months.

Forecasts by the Bureau of Mines and economists of the industry indicate that oil consumption in the next few months will be approximately the same as in the corresponding months last year.

If those forecasts are fulfilled, the trends of demand will be largely the same as in the past few months, holding up around the 1937 levels, but failing to show any material increase over last year.

These forecasts mean, therefore, that at least for a few months longer, no pronounced revival of brisk demand is expected.

The normal trend of petroleum consumption in recent years, up to last fall, was consistently upward, each year showing improvement over the preceding year. And until the consumption again begins to show appreciable year-to-year gains, the trends will not be definitely better.

Among the items of demand that are particularly important is the consumption of gasoline, principal product of the industry. For July, the Bureau of Mines has estimated that domestic demand for gasoline would be 1.3 percent lower this year than last year. That estimate was not quite as hopeful as the similar estimate that had been made for June, which contemplated 1 percent smaller domestic gasoline use this year than last year.

The bureau anticipated continued good export business in gasoline in July, but even so, the total gasoline demand for the month was expected to be ½ of 1 percent smaller than in July, last year, as compared with the forecast of 3/10 of 1 percent less demand in June than a year before.

Prior to June, the similar monthly forecasts had indicated somewhat larger gasoline demand in 1938 than in 1937, and those estimates had been fairly well fulfilled. In March, domestic use of gasoline still was running above the 1937 levels, but in April it dropped below those levels, and for the first four months of 1938, the U. S. demand for gasoline was 1.2 percent larger than in the comparable period of 1937.

Economists in the industry are a little more optimistic than the Bureau of Mines, but not much more, as indicated in one of the tables. They expect domestic demand for gasoline to be ½ of 1 percent smaller in July, 1938, than in July, 1937, but total demand, by virtue of brisk export business, to be 1 percent larger. For the third quarter (July, August, and September) of 1938, they expect domestic use of gasoline to be up ½ of 1 percent and total demand to be up the same amount. Thus they anticipate that the trends of gasoline demand will be about the same in the third quarter as in the earlier part of the year.

The accompanying figures on actual demand in the first four months of this year show that the total demand for all petroleum was 1.2 percent smaller in April than in that

Bureau of Mines Forecasts Reflect Trends of Demand

(Barrels of 42 U. S. Gallons)

MONTH	Total Demand for Domestic Crude	MOTOR FUEL DEMAND		
		Domestic	Export	Total
Bureau of Mines Forecasts				
January:				
January, 1938, forecast	105,610,000	36,500,000	3,800,000	40,300,000
January, 1937, actual	99,442,000	33,696,000	2,978,000	36,674,000
Change from year ago	+6.2%	+8.3%	+27.6%	+9.9%
February:				
February, 1938, forecast	96,270,000	32,550,000	3,200,000	35,750,000
February, 1937, actual	89,817,000	32,000,000	2,640,000	34,640,000
Change from year ago	+7.2%	+1.7%	+21.2%	+3.2%
March:				
March, 1938, forecast	105,150,000	40,680,000	3,600,000	44,280,000
March, 1937, actual	99,738,000	40,561,000	2,426,000	42,987,000
Change from year ago	+5.4%	+0.25%	+48.3%	+3.0%
April:				
April, 1938, forecast	100,850,000	44,500,000	3,300,000	47,800,000
April, 1937, actual	98,565,000	43,409,000	2,787,000	46,196,000
Change from year ago	+2.3%	+2.5%	+18.4%	+3.5%
May:				
May, 1938, forecast	102,860,000	46,800,000	3,100,000	49,900,000
May, 1937, actual	106,857,000	45,484,000	3,333,000	48,817,000
Change from year ago	−3.8%	+2.9%	−7.0%	+2.2%
June:				
June, 1938, forecast	100,000,000	48,100,000	3,400,000	51,500,000
June, 1937, actual	105,274,000	48,580,000	3,085,000	51,665,000
Change from year ago	−5%	−1%	+10.2%	−0.3%
July:				
July, 1938, forecast	105,340,000	49,930,000	4,000,000	53,930,000
July, 1937, actual	111,387,000	50,704,000	2,962,000	53,666,000
Change from year ago	−5.4%	−1.3%	+35.0%	−0.5%
***Oil Industry Forecasts**				
Monthly:				
July, 1938, forecast	106,900,000	50,440,000	3,770,000	54,210,000
July, 1937, actual	111,387,000	50,704,000	2,962,000	53,666,000
Change from year ago	−3.5%	−0.5%	+27.6%	+1.0%
Quarterly:				
Third quarter, 1938, forecast	318,010,000	148,370,000	11,250,000	159,620,000
Third quarter, 1937, actual	335,500,000	147,550,000	11,190,000	158,740,000
Change from year ago	−5.2%	+0.5%	+0.5%	+0.5%

* Represents a compilation of the estimates of representatives of industry associations, oil companies, and petroleum economists, submitted at the request of the Bureau of Mines.

Actual Oil Demand Reflects Recent Dull Business

This table shows demand of all oils, and is based on Bureau of Mines monthly reports on petroleum.

(Thousands of Barrels of 42 Gallons)

ITEM	FEB. COMPARISON			MARCH COMPARISON			APRIL COMPARISON			YEARLY COMPARISON		
	Feb., 1937	Feb., 1938	Percent Change	March, 1937	March, 1938	Percent Change	April, 1937	April, 1938	Percent Change	First 4 Mos., 1937	First 4 Mos., 1938	Percent Change
Total demand	93,445	94,945	+ 1.6	108,684	110,237	+ 1.4	108,594	107,298	— 1.2	414,772	415,894	+ 0.3
Exports—												
Crude petroleum	3,777	5,328	+41.0	3,196	6,121	+91.5	4,899	7,553	+54.1	15,468	24,955	+61.3
Refined products	6,736	8,605	+27.7	7,014	9,204	+31.2	8,763	10,427	+18.9	30,448	26,224	+19.0
Domestic Demand—												
Motor fuel	32,000	31,861	— 0.4	40,361	41,259	+ 1.7	43,409	43,254	— 0.3	149,666	151,550	+ 1.2
Kerosene	4,226	5,017	+18.7	4,786	5,150	+ 7.6	4,465	4,333	— 2.9	18,774	19,860	+ 5.8
Gas oil and distillate fuels	10,572	11,651	+10.2	10,800	10,487	— 2.9	8,171	7,800	— 4.5	44,399	42,580	— 4.1
Residual fuel oils	27,343	23,627	—13.6	29,682	25,696	—13.4	27,709	22,279	—19.6	112,853	97,446	—13.6
Lubricants	1,486	1,311	—11.6	2,490	2,195	—11.8	2,224	1,591	—28.5	7,883	6,568	—16.7
Wax	68	82	+20.5	88	90	+ 2.3	109	101	— 7.3	369	388	+ 5.1
Coke	444	416	— 6.3	401	308	—23.1	399	373	—21.5	1,764	1,572	—10.8
Asphalt	1,027	883	—14.0	1,273	1,444	+13.4	1,610	1,654	+ 2.7	4,804	5,058	+ 5.3
Road oil	223	168	—24.7	159	131	—17.6	230	208	— 9.6	831	658	—20.8
Still gas	4,348	4,428	+ 1.8	4,981	4,901	— 1.6	5,025	5,073	+ 0.9	18,873	19,339	+ 2.5
Miscellaneous	189	132	—30.1	245	137	—44.1	172	166	— 3.5	763	572	—25.0
Losses	1,006	1,436	+42.7	3,008	3,114	+ 3.5	1,409	2,546	+80.7	7,877	9,124	+15.8
Total domestic demand	82,932	81,012	— 2.3	98,474	94,912	— 3.6	94,932	89,318	— 5.9	368,856	354,715	— 3.8

month last year, but 3/10 of 1 percent larger for the initial four months of 1938 than in that period last year; both comparisons having been better because of brisk exports of both crude and refined oils.

The figures on total domestic demand were less favorable, because of greatly curtailed consumption of industrial grade fuel oils and lubricants and somewhat smaller demand for light fuel oils and road oil. The total domestic demand in the first four months of 1938 was 3.8 percent smaller than in the corresponding period of 1937, and in April it was down 5.9 percent.

* * *

Crude Markets Shifting

Some important shifting of markets for crude oil, among the different states, has been in progress in the past year or so. Some states have gained larger markets, while others have suffered losses of markets, although the total demand for United States crude oil has run slightly higher this year than last year.

An accompanying table shows how the markets have shifted. (Center column.)

Conspicuous is the decline of about 10,000,000 barrels in the four-months' demand for Oklahoma-Kansas and North Texas crudes this year, although requirements have been somewhat smaller also for Pennsylvania grade and Rocky Mountain crudes.

On the other hand, the other districts of the Mid-Continent have had increases in demand about equaling the decrease in Oklahoma and Kansas, the gains having amounted to approximately 2,200,000 barrels for North Louisiana-Arkansas, 4,000,000 barrels for West Texas-Southeast New Mexico, and 2,500,000 barrels for East Texas.

It is indicated, therefore, that Oklahoma and Kansas probably lost some of their markets to other districts of the Mid-Continent.

But it should be recognized that some of the gains in those other Mid-Continent areas occurred primarily by virtue of the national increase in demand.

And while some of the Oklahoma-Kansas markets shifted to adjacent Mid-Continent districts, important portions went to Illinois-Southwest Indiana, where demand was up 3,200,000 barrels, as new fields found ready markets, and to the Michigan territory, where demand jumped 2,700,000 barrels for the initial four months of 1938. Those two areas had a combined gain of about 6,000,000 barrels as against the Oklahoma-Kansas decline of 10,000,000 barrels.

Another important change was the 4,600,000 barrel increase in demand for Louisiana and Texas Gulf Coast crude, which was at least partially in competition with Oklahoma-Kansas oil.

Thus Oklahoma and Kansas, heaviest losers of markets, cannot definitely trace the markets they have lost, although large proportions undoubtedly went to Illinois and Michigan, because of the geographic advantages of new fields in those states.

Finally, while Oklahoma and Kansas were the heaviest losers, the most conspicuous winner was California, although that Western state had the benefit of a better market largely through better demand in the Pacific Coast territory and through sharply higher exports to Japan. Thus California's gain was not the loss of other states. For the four-months' period, demand for California crude was 13,500,000 barrels larger this year than last year.

While domestic demand for crude oil has been better this year than last year, foreign trade also has been better. The exports in the first four months were 9,500,000 barrels larger this year than last year.

The above figures, from the Bureau of Mines, show why it has been necessary for some states, including Oklahoma and Kansas, to hold allowables down. With markets curtailed, production likewise has had to come down, in order to prevent running of crude into storage.

Indicated Domestic Demand for Crude Oil

(Bureau of Mines Figures; Thousands of Barrels)

ITEM	First 4 Months	
	1937	1938
Domestic petroleum by districts of origin:		
Appalachian—		
Pennsylvania Grade	9,331	9,182
Other (incl. Kentucky)	2,196	2,063
Lima-N. E. Ind.-Mich	3,785	6,422
Ill.-S. W. Indiana	1,742	4,922
Mid-Continent—		
No. La.-Ark	12,154	14,334
W. Tex.-S. E. New Mex	33,222	37,333
East Texas	50,509	52,929
Other (Okla.-Kans.-N. Tex., etc.)	138,802	128,585
Gulf Coast	54,560	59,101
Rocky Mountain	8,524	8,210
California	66,766	80,254
Total demand for domestic crude	381,591	403,335
Exports	15,468	24,955
Domestic demand for domestic crude	366,123	378,380
Foreign petroleum	**6,318**	**8,323**
Total domestic demand for all crudes	372,441	386,703

Significance of

Recent Illinois Basin Discoveries

By GAIL F. MOULTON
Ralph E. Davis, Inc., Engineers

THE Illinois Basin area, in the sense used here, includes part of Kentucky, and a major portion of Illinois and Indiana. This designation is used by the petroleum industry to indicate the area included within a major geological basin having its deepest point in east central Illinois, and extending to the margin of the structural feature in or near the adjoining states.

It is believed that a proper appreciation of the significance of the recent oil discoveries in this area can best be obtained if consideration is first given to the general geology of the area, and the previous exploration and development of oil and natural gas there. Accordingly, a resume of the geology and petroleum exploration in the area will be given before considering the new elements which have made possible the success of the recent exploratory work.

Resume of Geology

The Illinois Basin area is a downwarped structural feature lying southwest of the Cincinnati arch and its northwesterly trending branches across northern Indiana. The basin is bounded on the west and southwest by the Ozark uplift of Missouri. During a large part of Paleozoic time, when the formations of interest to the oil industry were being deposited, the region was relatively quiescent, and although subjected to uplift and subsidence, it was not acted on by forces causing the development of local folds. During this time, and until the end of the Paleozoic deposition, the present basin apparently was in the northern portion of a much larger basin in which the deposition of rock material took place.

There is evidence that some local folding took place at or near the end of the time of deposition of the Devonian limestone, for local high structures in this formation in some portions of the area are also local areas in which weathering has caused the development of porosity which is entirely lacking in nearby locations which are structurally low. As far as known, deposition continued without further local warping of importance until the end of Mississippian time. During all this period the rock materials deposited in different portions of the basin varied in character and thickness to some extent as a result of variations in local conditions. Such variations are particularly pronounced in the Ste. Genevieve formation and the Chester series. Changes in original character of the older beds of interest to the oil industry are, as far as known, more largely of a regional nature rather than local and abrupt.

At the end of Mississippian time, and before the beginning of Pennsylvanian deposition, the region was subjected to extensive warping followed by or concurrent with a long period of erosion which developed a land surface cutting across most of

Important though the new reserves are, the methods used in their discovery are more outstanding, as they indicate the future finding of similar fields

This paper was presented before the Illinois-Indiana Petroleum Association annual conference held in Robinson, Illinois, on June 4, 1938.

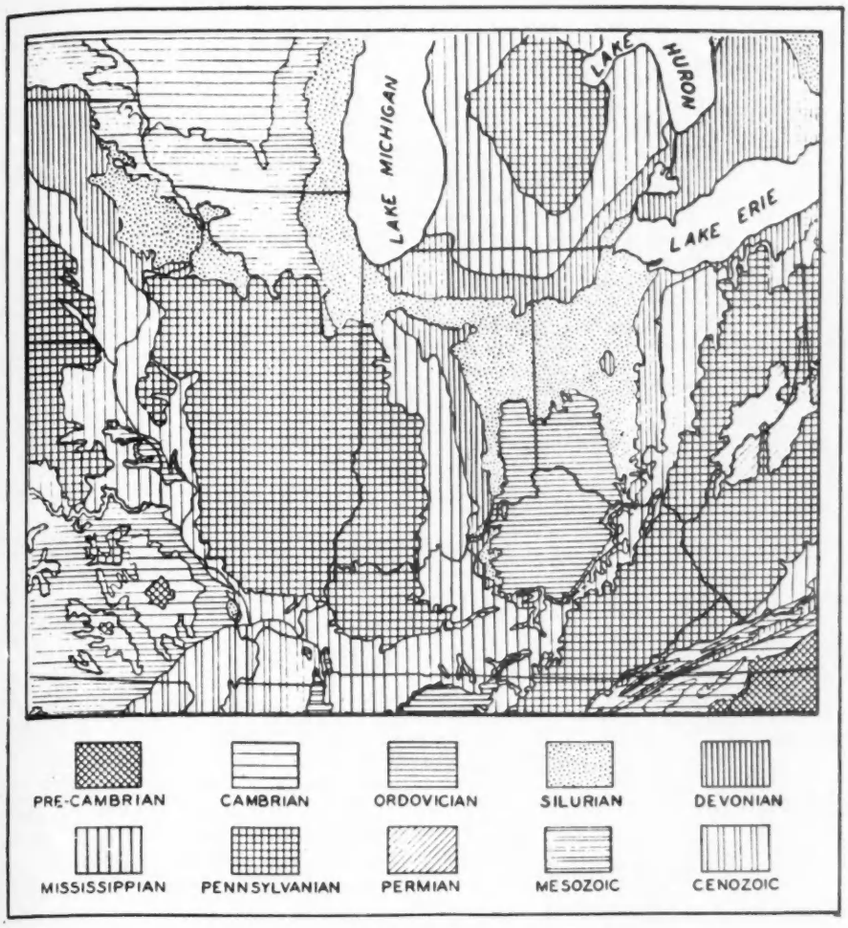


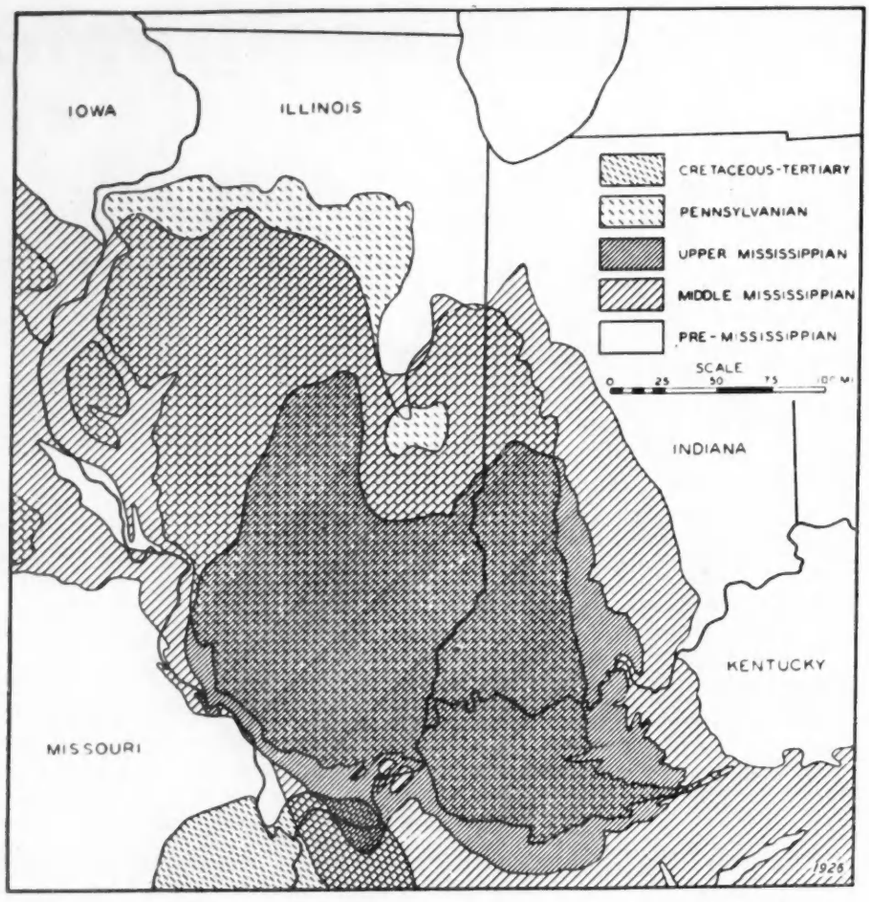
FIGURE 1
Geological Map of East Central United States

the older formations in the marginal portions of the basin. The major structural features of the Illinois Basin area were established by earth movements during this time. As the down-warping of the basin progressed during early Pennsylvanian time, portions of it were brought below grade level and new deposition started under shallow water conditions. During Pennsylvanian time there was continued subsidence of the basin as it was filled with sand and mud. The size of the area of deposition expanded during this period of deposition with the result that the lowest Pennsylvanian beds near the original margin of the basin are much younger than those in the deepest part.

Renewed earth movements in later Pennsylvanian time, and afterwards, folded and faulted both the Pennsylvania and older beds. Much of this folding occurred along axes of deformation already established, and served to accentuate structures formed previously in the pre-Pennsylvanian beds. In many portions of the area, however, this type of folding was so slight that its results are difficult to distinguish from the effects of depositional irregularities in and differential compaction of the older Pennsylvanian beds. Consequently, the use of data on horizons in the Pennsylvanian beds, and particularly in the younger Pennsylvanian beds, as a means of determining the location of folds affecting the older formations necessarily gives uncertain results.

The problem of making use of geologic data on beds in the Pennsylvanian has been further complicated by the fact that millions of years have elapsed since their deposition, and in comparatively recent time great continental glaciers have spread over much of the area. These glaciers brought and left large quantities of rock debris. Subsequent erosion has not been sufficient to remove this cover from large portions of the basin. As a result, outcrops are scarce and badly interrupted in many portions of the area. In such places it has been necessary to rely on the interpretation of records of wells and coal mines to provide geologic data. As far as their bearing on the problems of petroleum exploration are concerned, these data have been very incomplete for the basin area as a whole. The water wells which penetrate any considerable thickness of consolidated rocks are mainly located outside of the prospective oil areas. Much of the data from coal tests and outcrops concern beds which are too recent to give much reliable data on potential oil producing structures. Oil tests were largely concentrated in productive areas, or were so widely spaced that the data generally were more useful in determining regional rather than local structural features. Further, much valuable data which should have been available from such wells has been lost because accurate records were not kept. As a result of all these factors, geologic data generally were available for a determination only of the major structural features of the Basin, and mainly were based on data on late Paleozoic beds. Such information is now known to be inadequate for proper petroleum exploration.

The distribution of the formations under the recent surface deposits as they were known prior to the beginning of the recent activity is shown in Figure 1. This map clearly outlines the Illinois Basin in which beds of Pennsylvanian age occupy a central area surrounded by outcrops of various older formations. The range in age of the beds on which the Pennsylvanian beds rest is indicated by the varying age of the beds which outcrop along the margin of the area covered by the Pennsylvanian sediments. This relationship is more



Courtesy of Illinois Geological Survey

FIGURE 2
Map Showing Pennsylvanian Overlap in the Illinois Basin

clearly shown in Figure 2, which shows not only the area covered by the Pennsylvanian, but also the identity of the beds on which the Pennsylvanian rests. On this map the area which appears darkest is the one in which formations of the Chester Series are overlain by Pennsylvanian beds. This constitutes the area of greatest promise for oil exploration as far as now known. Clearly, however, adjacent areas may have good prospects for production from formations considerably below the Chester.

The general structure of the Illinois Basin area is shown by Figure 3. This map shows the long westward slope from the Cincinnati arch in eastern Indiana towards the low part of the basin in central Illinois, the LaSalle anticline in eastern Illinois, and the DuQuoin uplift in central Illinois. Numerous minor structural features which have been defined are now shown, and it is probable that an even larger number which are not yet known are also present.

Early Oil and Gas Development

Following the first oil excitement in the Appalachian region, the wildcatting activity spread westward to eastern Indiana, where the old Trenton oil and gas fields were discovered on the eastern rim of the Illinois basin. Oil explorations gradually extended westward to Illinois. Although the first successful oil operations in Illinois took place near Litchfield in Montgomery County in 1886, and commercial gas production was discovered in Randolph County, near Sparta, Illinois, in 1888, the first production in the basin area of national importance was the result of the discovery of the southeastern Illinois field.

In 1900 oil prospecting began in Robinson Township, Crawford County, Illinois. By 1906 six wells had been drilled in the vicinity, but only small amounts of oil and gas were found. In 1904 oil men from Pittsburgh, Pennsylvania, started drilling in the vicinity of Oilfield, Illinois, in Clark County. Their second well had an initial production of 35 barrels of oil per day at shallow depth, and was the real discovery well of the southeastern Illinois field. The Clark County field was aggressively developed until 1909 when the producing area had been defined. The discovery well in Crawford County, Illinois, was completed in 1906 for an initial production of 250 barrels per day at a depth of 890 feet. This well, located in Section 15, Oblong Township, started active development in the county. By 1907 oil had been discovered in Lawrence County, Illinois, and development of the best oil production yet known in the Illinois Basin area was started.

There was considerable activity outside of the eastern Illinois fields in other parts of the Illinois Basin at about this time. Oil was discovered in Gibson County, Indiana, in 1907 and in Pike County, Indiana, in 1909. The first discovery in western Kentucky was in Logan County in 1910, and in Ohio County in 1912. Seepages in a coal mine near Centralia, Illinois, led to prospecting in that vicinity, and in 1909 the Sandoval field was discovered. These fields were small in area, and were soon drilled up, usually without the accidental discovery of additional producing area nearby.

Meanwhile, drilling continued in the southeastern Illinois field until a major portion of the nearly continuous producing area of about 90,000 acres had been developed. During this period the annual oil production of the state reached a maximum of more than 33 million barrels and in the five-year period ending in 1912 more than 150 million barrels were produced. During most of this period

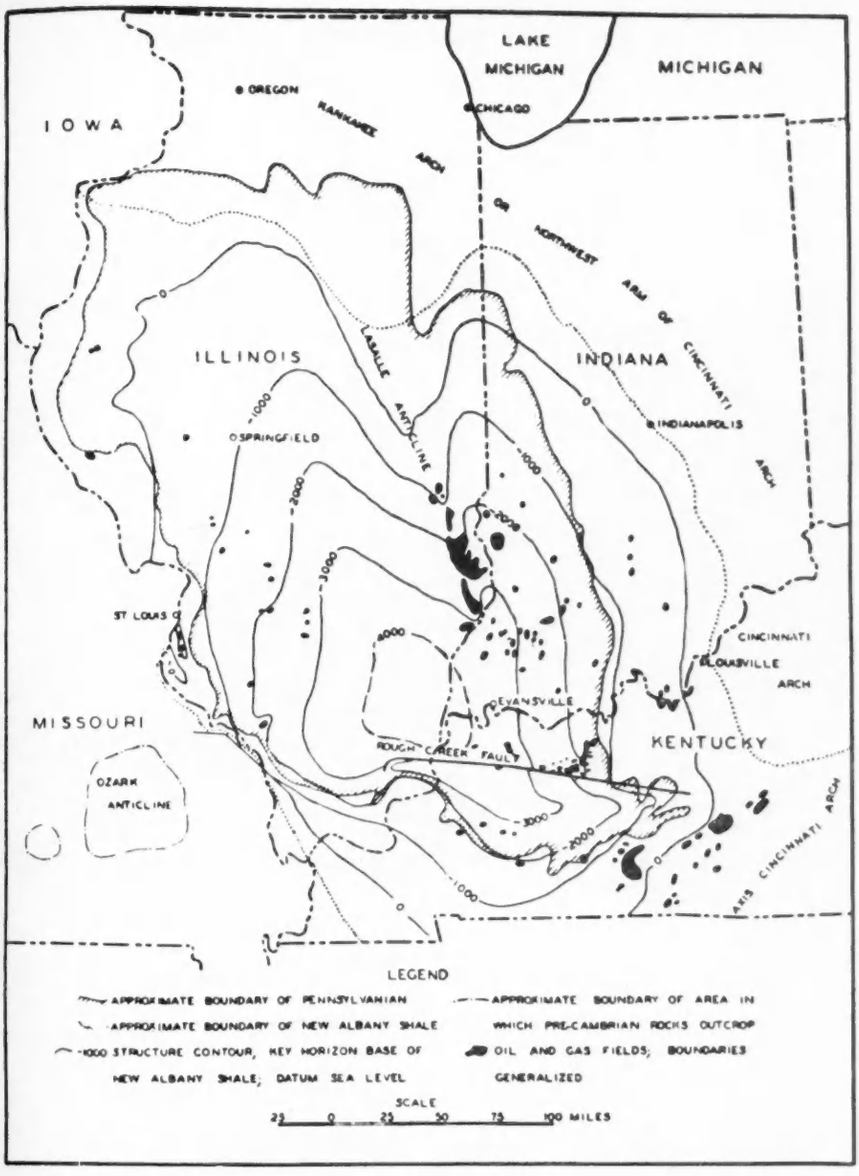


FIGURE 3

Oil and gas pools of Eastern Interior Coal basin. Boundaries of formations, oil and gas pools, and structure contours from data published by State Geological Surveys of Illinois, Indiana and Kentucky and from data from files of Illinois State Geological Survey.

Illinois was the third most important oil producing state in the country.

It should be noted that during this earlier development the industry was operated strictly on a so-called "practical" basis; geological and oil production engineering sciences were not employed by the operators because this period was long before the pioneers in these technical fields had conclusively demonstrated the value of their services to the industry. As might be expected, once the large eastern Illinois field was discovered, its exploitation was readily accomplished. Outside of this area, where production is controlled by the presence of the LaSalle anticline, the largest upfold in the Illinois Basin, structures were small and difficult to find. Production on small structures, particularly in the portions of the basin where drilling depths are shallow, has been discovered at intervals down to the present time.

Due to the efforts of the Illinois Geological Survey, fairly good records of the early developments in the Illinois fields are available. The value of the research contributions of the survey has been consistently increased, and it may be anticipated that the importance of their role of assembling and coordinating available geologic data will prove to be even greater in the years to come.

After about 1914, when the Murphy pool in Lawrence County, Illinois, was discovered by a 2400-barrel well in the "McCloskey sand" few important discoveries were made. Attempts to discover additional fields were largely unsuccessful, due to the irregular nature of the producing formations and to other geologic conditions. The small average area of the undiscovered fields outside of the deepest portion of the basin doubtless was an important factor, for even if one such field were to be discovered, it did not lead to additional discoveries. The scattering outcrops and coal test holes provided a certain amount of data on the structure of formations of Pennsylvania age, but most of the apparently favorable areas tested had unfavorable conditions in the producing formations or the structure of the lower formations was not conformable with that of the beds on which the geologic data had been obtained. As a result of the very low ratio of success in wildcat operations for the next decade, prospecting by organizations having up-to-date facilities at their disposal practically stopped. Wildcatting continued, it is true, but in some years more than half the dry wildcat wells could have been avoided by the use of competent geologic advice.

Recent Developments

At about the time the other depression started eight years ago, The Pure Oil Company geological department decided that Michigan and Illinois were sufficiently similar from a geological viewpoint that it would be worthwhile to determine whether the Illinois Basin, like the Michigan Basin included structures favorable

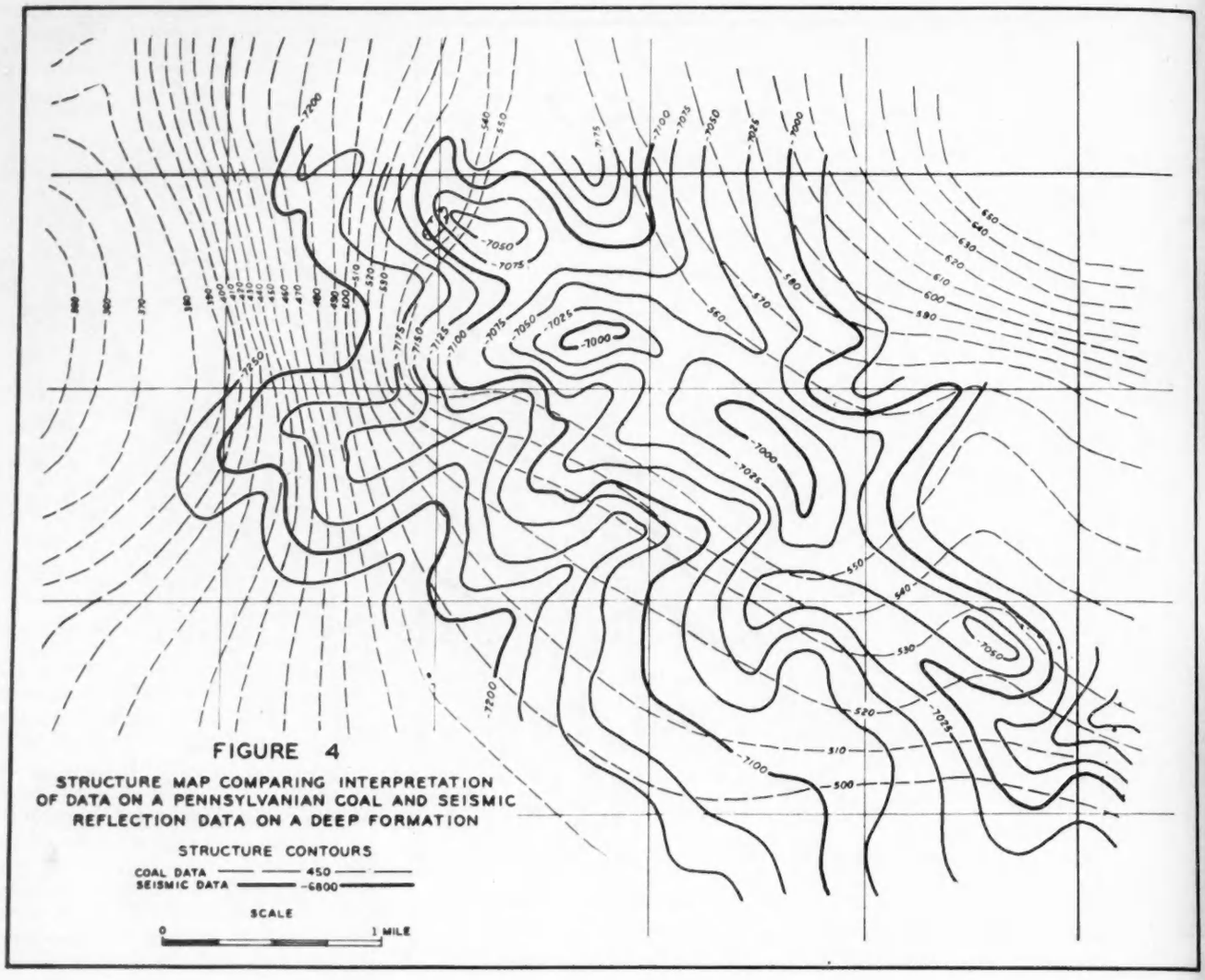


FIGURE 4

STRUCTURE MAP COMPARING INTERPRETATION OF DATA ON A PENNSYLVANIAN COAL AND SEISMIC REFLECTION DATA ON A DEEP FORMATION

for the accumulation of oil. Dr. A. H. Bell of the Illinois Geological Survey prepared a paper calling attention to this possibility at about the same time. The severity of the depression, and particularly the low price of oil which resulted from overproduction in the East Texas field delayed the start of such exploration until late in 1935. At that time, however, several major oil companies had begun a well balanced program of exploration in the basin.

The status of petroleum exploration in the Illinois Basin at the beginning of the present activity is clearly indicated by the example of the Bartelso field in Illinois. The coal structure on which this field is situated was described and recommended for drilling in a report of the Illinois Geological Survey published in 1912. The first well to be drilled on the highest part of the coal structure mapped, was completed as a satisfactory oil producer early in 1936. In spite of the failure of tests on similar structures in the Illinois Basin, it is doubtful that any apparently equally favorable structure so near a producing field would have remained untested for so long a period in any other region.

During the decade preceding the present activity in the Illinois Basin area, the exploratory and development branches of the petroleum industry had developed new methods to discover and develop oil fields in other areas. In a large measure the success of the industry in other regions has depended on them. These new tools for exploration and development were brought to Illinois and their applicability in providing a solution of the problems in this region were determined. The recently discovered fields, which are greater in area and value than all those discovered from 1920 to 1935, are absolute proof of their success.

The reflection seismograph is probably the most important method of petroleum exploration which has recently been brought into the Illinois Basin. Originally developed from the refraction seismograph used to solve geologic problems in the Gulf Coast area, the reflection seismograph has proven to be a geophysical method of very wide application. It is not the province of this discussion to attempt to explain the method in detail, for both the mechanism involved and the technique of its use and the interpretation of the results are highly involved. The general idea is that an elastic compressional wave, such as may be set up in rock by the detonation of a charge of explosive, is partly reflected in passing from a less elastic to a more elastic rock, such as from shale to a limestone. By accurate measurements of the travel time for such a reflected impulse at different points in an area, the general configuration of a formation surface at depth may be determined.

The discovery within a short time of the Patoka, Cisne, Clay City and Noble fields, all which are located on structures found through the use of the reflection seismograph, demonstrated the utility of this geophysical method in the region. These discoveries likewise demonstrated the presence of folded structures, suitable

BETTER FACILITIES

. . . BETTER SERVICE

Youngstown's new seamless tube mill, because of its improvements provides a completely modern and dependable source of supply for seamless oil country tubular goods. Since it is the first seamless tube mill built in this country within the past seven years, advantage has been taken of all the technical improvements in mill design and all the experience gained in seamless tube manufacture during this period. Here are three of the many improvements which make possible better quality and greater uniformity

1 - Giant "peelers" which remove the outer surface of the solid rounds to expose any defects and make certain that only sound steel is used. This displaces the former process of pickling and chipping.

2 - New design heating furnaces with under-and-over firing insure the even heating of the solid round so necessary for best quality seamless pipe.

3 - The heaviest housings ever used in a seamless tube mill, roller bearings and improved bar steadiers on the two piercers, combine to give this mill the extreme solidarity, stability and freedom from vibration which enables the operators to work to established tolerances with greater ease than heretofore possible on any mills of similar size or design.

THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of Carbon and Alloy Steels
General Offices - - - YOUNGSTOWN, OHIO

2-7A

OIL COUNTRY TUBULAR GOODS
YOUNGSTOWN

Sheets - Plates - Pipe and Tubular Products - Conduit
Tin Plate - Bars - Rods - Wire - Nails - Unions - Tie
Plates and Spikes.

Youngstown's pipe is distributed by:
The Continental Supply Co., Dallas, Texas
Continental Emsco Co., Inc.,
30 Rockefeller Plaza, New York City
Republic Supply Co. of California,
Los Angeles, California

source rocks, and suitable reservoir rocks in the deeper portion of the Illinois Basin. Although considerable difficulties are encountered in obtaining satisfactory seismic data in some areas in the basin, and although not all such structures, even if correctly interpreted, will prove productive, the results of drilling to date are ample justification for the continued use of this method of solving structural problems in the area.

A map of an area east of the low portion of the basin is shown in Figure 4 to compare the structure which may be worked out by surface and shallow formation data with the data on a deep formation obtained by a seismic survey. The light contours show the structure of a coal bed of middle Pennsylvanian age. The area of low dip in this coal appeared to have some prospects of representing a folded structure in the deeper formations. The seismic data are based on the interpretation of several profiles with closely spaced shot points, and as is indicated by the contour elevations, the reflecting horizon used lies at a considerable depth. The outstanding facts shown by the superimposition of one of these maps on the other are that the structure of the coal gave an indication of the location of the high structures in the deep formations, and that some portions of the area appear to have equal merit on the basis of the structure of the coal. Since oil production in the area mapped is expected to be controlled most largely by structure and to be restricted to the highest portions of the local folds, the ratio of the area of the seismograph structural high to the area of the terrace mapped on the coal data is a measure of the improved ratio of success which should be obtained from the use of reliable seismic data. Such data on older formations is of particular value, for all the folding affecting the potential oil reservoirs above also affects them. The Pennsylvanian formations were deposited after a considerable portion of this folding took place, and consequently show the effects only of later movements, which in many parts of the basin were of minor importance. The difficulty of locating fields on such small structures without the aid of geophysics is evident.

New Devices Help

A second notable advance is in drilling equipment. With the introduction of modern rotary rigs, it became possible for the first time to start a 3000-foot well in the deeper parts of the Illinois Basin and to have assurance that completion within a reasonable time and at a reasonable cost could be expected. As further experience results in better choice of equipment and improved operating practices, both for drilling and equipping wells, further reduction in cost may confidently be expected.

A by-product of rotary drilling is the satisfactory data which may be obtained from cores. The formations encountered in the basin are generally well indurated so that a large proportion of the formation cored can usually be recovered for study.

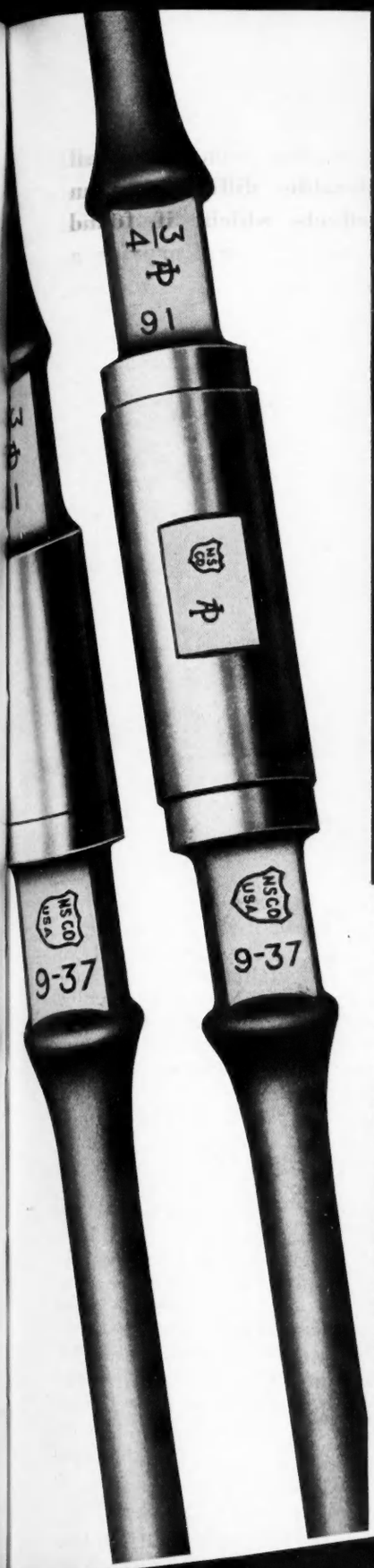
Electrical logging has been used successfully in Illinois during the present rejuvenation of exploration. These logs of wells are obtained by running electrodes into a well on a cable, and will be discussed in another portion of today's program. Although the greatest value of electrical methods in obtaining subsurface data undoubtedly lies in their use in areas of soft sediments lacing in persistent, well defined lithologic units, they have a definite function in any drilling program. They provide a means of correcting errors in measurements used in the compilation of drillers logs and of getting more detailed information on the variations in thickness, porosity and permeability of the strata penetrated than is possible at reasonable cost by any other means. The value of these data are ample justification for the extensive use of electrical logging in the Illinois Basin area.

In the past, variations in the permeability of oil reservoir rocks were a more serious handicap to the oil operator than now. The application of engineering methods to the use of explosives in the shattering and opening up producing formations has resulted in considerable progress in this field. At the present time wells are more carefully prepared before shooting and shots are more carefully placed and worked out as to proper size than at any previous time. As a result the benefits derived from this type of work are more satisfactory than previouslv.

Variations in permeability are particularly troublesome in some limestone reservoir formations, such as the "McCloskey" of the Illinois Basin area. The progress made in overcoming unfavorable reservoir conditions in formations of this type is particularly noteworthy. The application of acid solutions to limestone reservoirs was in use in the Illinois Basin area prior to the recent discoveries but the utilization of this service has increased greatly as a result of the new activity. Acid treating, like shooting, opens up the formation in the vicinity of a well and eliminates a large part of the friction of flow of oil through the formation, for a major portion of the friction loss takes place in the immediate vicinity of the well. As a result, in new fields with high formation pressures, wells which penetrate formations with locally low permeability which would normally be moderate sized pumpers may become flowing wells of larger capacity. In such wells the energy saved by opening up the producing formation through acid treatment is sufficient to lift the oil to the surface. Other wells which are completed in lime formations with too low permeability to make commercial pumping wells may have a sufficient increase in their rate of production to permit profitable pumping operation. Consequently, the net result of the use of acid treatment is to reduce the hazard of developing production from limestone reservoirs, and to increase the profit which may be realized from such fields.

In summary, the methods of 30 years ago gave satisfactory results in the large and prolific eastern Illinois field. This has been shown to be the result of the very large area of the field and the lack of serious drilling problems. The new methods recently brought into the basin are essential for the profitable discovery and exploitation of the remaining fields of small average size. As exploration continues, modifications of seismic, drilling, and well completion technique may be expected to result in even more satisfactory operations. Large areas in which oil fields will probably be discovered in Illinois, Indiana and Kentucky remain to be explored and developed. Doubtless, it will be some years before this work is completed. During this development new producing formations as well as new fields are likely to be discovered.

The real significance of the recent developments in the Illinois Basin area is that profitable development of the type of production to be found there has been made possible through the application of modern methods. Important though the new reserves are, the methods used in their discovery are more important, for we may confidently anticipate the future discovery in a similar manner of a large number of similar pools. Although these new pools may not produce an amount of oil equal to that already recovered from the old fields in the basin, in the aggregate their oil reserves should prove to be substantial.



It's ultimate cost rather than initial cost that determines Sucker Rod values.

When Sucker Rods are selected as a result of a comprehensive survey of individual pumping conditions by National's Engineering Staff, the resultant service achieves exceedingly low ultimate cost.

These engineers are prepared to make individual well surveys and dynamometer test to determine the true pumping conditions in any field.

ATIONAL

NATIONAL SUPPLY COMPANY

EXECUTIVE OFFICES: PITTSBURGH, PA.
OFFICES: FT. WORTH, TEXAS; TULSA, OKLA.; TORRANCE, CALIF.
GENERAL SALES OFFICE: TOLEDO, OHIO

Experiments have shown that within relatively small thicknesses of layers considerable differences can be observed in radioactive effects which, if found to be consistent over a large area, would provide a sensitive criterion for the correlation of horizons.

Core Testing by Radioactive Methods

By H. LANDSBERG and A. I. INGHAM
The Pennsylvania State College

THE fact that radon (RaEm) readily dissolves in petroleum led to the idea of investigating the radioactive properties of oil-bearing strata. Measurements of the ionization in oil wells by Hummel[1]* had shown very strong activity near the horizons acting as oil reservoirs. Belluigi[2], in a paper dealing with helium sources and the radioactivity connected with oil, suggested prospecting for such deposits by radioactive methods. It was therefore thought that by inspecting cores for their radioactive properties, an additional method of analysis might be made available.

Most rocks contain a certain, though very small, amount of radioactive material. Radon, one of the products of radioactive disintegration, is a gas and therefore is able to diffuse readily through porous structures. Any accumulation of oil, acting as a solvent, would tend to enrich itself with radioactive material.

Since the disintegration would continue, the following products of radon, namely RaA through RaG —all solids—would partly stay, in the particular horizon, even though the oil might be removed. This secondary concentration of radioactive substances, as well as any possible primary differences in radioactive constituents of the strata, if measurable, should prove an aid in correlating horizons.

With the foregoing as a working hypothesis, measurements of oil sandstones were started in the spring of 1937. Because measurements in wells are subject to many outside influences, attempts were restricted to laboratory tests on cores taken from oil wells. The electrometric method of measuring the ionization resulting from radioactive radiations was employed. A few preliminary tests with an ordinary Lind electrometer (sensitivity ½ volt per scale division), showed that this instrument was not sufficiently sensitive to measure the small ionization. Therefore, a Lindemann electrometer was used for further measurements. This electrometer, besides having a very small electrostatic capacity, has a high sensitivity. If the quadrants were given a potential at the limit of stability (about ± 35 volts), a sensitivity of 0.01 volts per scale division was attained. The theory of this type of electrometer has been studied by Israel[3], whose experiences proved valuable in the study. A potentiometer arrangement was used to keep the needle of the electrometer balanced. Considerable experimental trouble was experienced in finding the right kind of an ionization chamber for the experiments. At first, large chambers of the Lind type with bakelite tops were used and a charge of 180 volts was applied to the chamber. The accuracy of the measurements taken in that fashion was very unsatisfactory. Two later models of chamber proved to be of more value. A small brass chamber 1 inch in diameter by 3 inches high with an amber insulator in the top proved to be useful. Another type of chamber consisting of a brass box with six compartments, each 1 inch square in cross section and 1 inch high, with a bakelite top, was designed to contain simultaneously various core samples so that they could be measured in rapid succession. This was done because emptying and filling the

*Numbers refer to bibliography at the end.

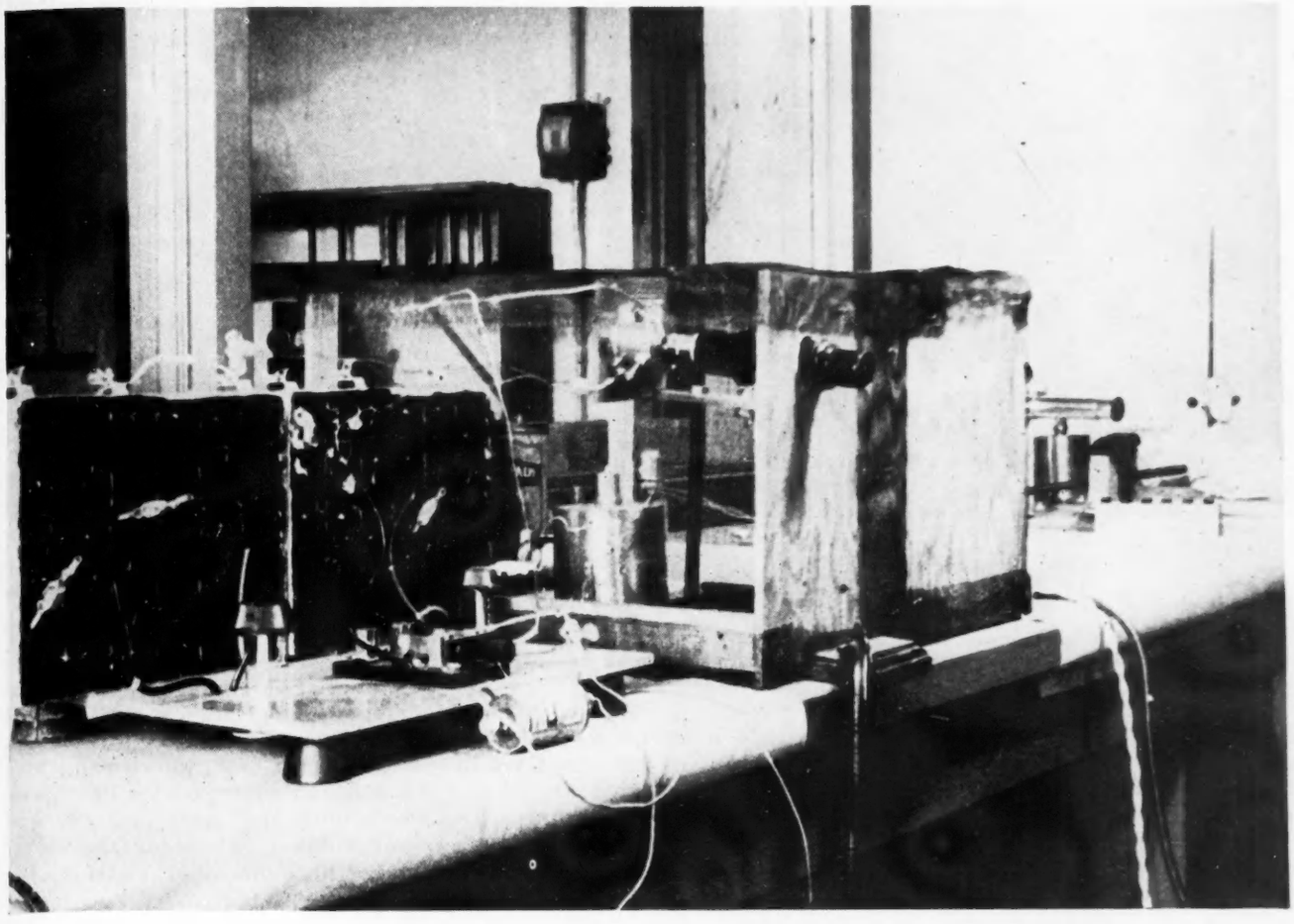


FIGURE 1
Electrometric apparatus for measuring the radioactivity of oil sandstones.

chambers caused too much disturbance of the electrometer. Incidentally, it was found that the polystyrene proved to be a good insulator for such measurements[4]. The whole apparatus was shielded electrostatically by means of a Faraday cage. The set-up is shown in Figure 1.

The sands used were pulverized to a size of 100 mesh in order to obtain a large active surface. A random sample of oil sandstone was used for numerous preliminary measurements. After the method was sufficiently well developed, sections of a core from one well was studied. This well was located in the Kane field, McKean County, Pennsylvania. The cores were from the Bradford sand. A complete petrographic analysis of the same cores has been made by A. W. Waldo[5]. The cores had been taken three years previous to the investigation. Any radon which may have been present would, of course, have disintegrated during this interval. Therefore only primarily present radioactive material and subsequent products of accumulated radon could have been present. The cores were taken from horizons approximately two feet apart, although this figure gives only an average. Figure 2 shows the relative activity for 12 samples taken at different depths in the Bradford sand. The ordinates give discharge rates of the electrometer expressed as needle motion of the electrometer in seconds per scale division. Values above the zero line indicate negative ionization and those below, positive ionization. It is quite evident that there exist appreciable differences in the various parts of the sand. The values represented by the figure are average for five single observations for the various samples, showing reasonable agreement among each other. The interpretation of the data is somewhat difficult. A relation between radioactivity and porosity of the rock is not traceable off-hand. The positive ionization observed can be attributed to any radioactive process giving off alpha particles. For the negative ionization only, one of the following products of radon, RaD, can be held responsible. This might be taken as an indication of a one-time saturation with oil. There remains, however, the alternative that potassium compounds produce this effect since Campbell and Wood[6] found that these emit only beta grays. Sample 11 in Figure 2, which shows a particularly large negative ionization, had according to the petrographic analysis more muscovite than any of the other samples. Muscovite is the potassium mica (H_2KAl_3 $(SiO_4)_3$) and thus the potassium beta radiation might have produced part of the observed effect, although this is deemed unlikely.

Some experiments were performed with crude oil from the Bradford region showing also a negative ionization which can result only from RaD. The crude reached the authors three weeks after extraction from the well. To this time most of the radon should have disintegrated. It is, therefore, evident that the oil itself does not contain any appreciable amount not primary radioactive material and

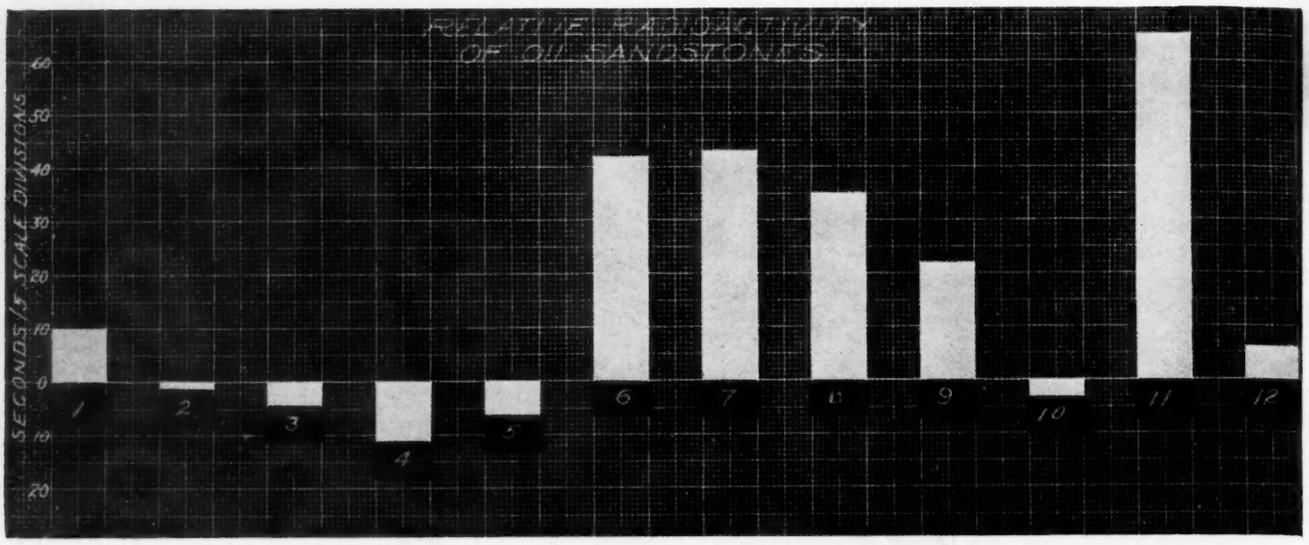
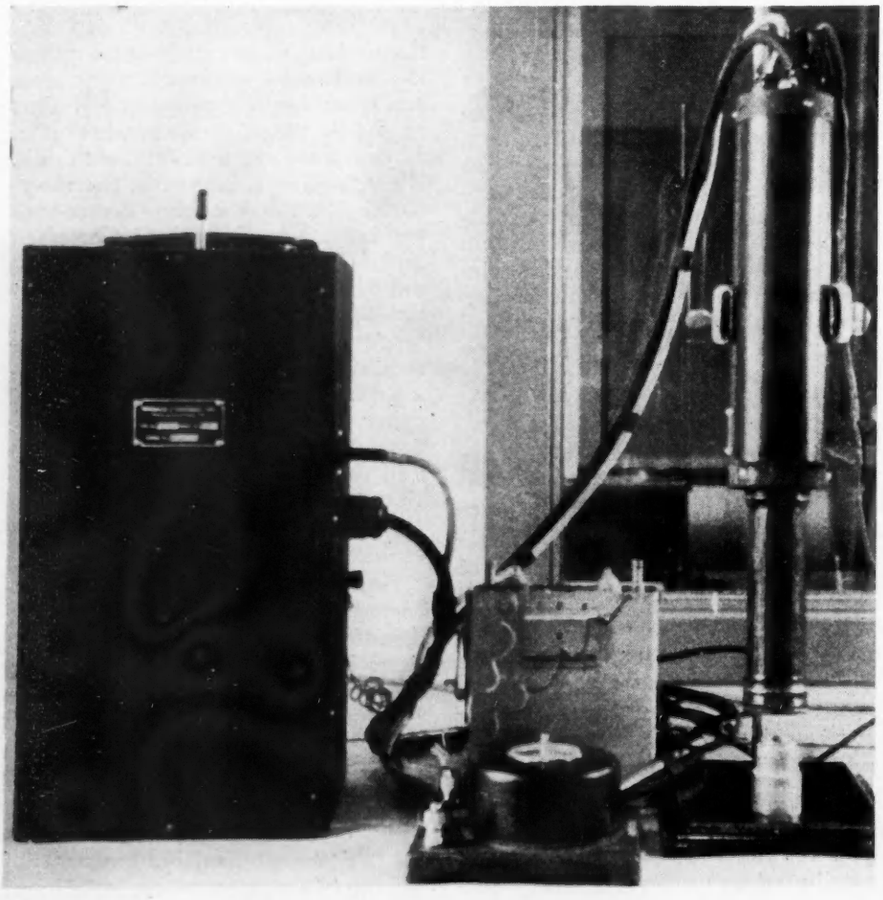


FIGURE 2
Relative radioactivity of various horizons in a core.

derives all activity from dissolved radon.

Electrometric measurements are cumbersome and require a great deal of experimental skill. For that reason, toward the end of our work a Geiger-Muller counter was used to measure the weak radiation resulting from the core (Figure 3). For general geological field work such a device had been employed recently by Gorshkov and Kurbatov[7]†, who measured in complicated precambrian structures and found a correlation between gamma radiation and small-scale variations in the geological strata. From our measurements we could conclude that the Bradford sandstone has on an average 1.7×10^{-12} gram of radium per gram of rock. The variations in the different layers are still under investigation, but some of the horizons seem to contain from two to three times more than the above figure indicates.

FIGURE 3
The counter used in measuring weak radioactive radiations.



In conclusion it can be said that within relatively small thicknesses of layers considerable differences in radioactive effects can be observed. If proof can be furnished that such differences are consistent over a large area, a sensitive criterion for the correlation of horizons may be available. This angle of the question is being investigated at present. It may be of experimental advantage to make measurements immediately after the removal of the core from the well, so that any radioactive material present may be tested in its full strength.

Bibliography

[1] H. Hummel, Handbuch der Experimental Physik, Vol. 25, p. 532.

[2] A. Belluigi, Giacementi oleiferi ed elio, Ind. Mineraria, Roma, Sept.-Oct. 1934.

[3] H. Israel, Zeitschr f. Instrumentenkunde, Vol. 51, 1931, 464-472.

[4] H. Landsberg & A. I. Ingham, Science, Vol. 87, 1938, 419-420.

[5] A. W. Waldo, Petrology of the Bradford sand of the Kane District. Penna. State College, Min. Ind. Exp. Sta., Bull. 24, 1938.

[6] N. Campbell and Wood, Proc. Camb. Phil. Soc. Vol. 14, 1907, p. 15.

[7] Gorshkov and Kurbatov, Arctica, 1937, No. 5, 9-44.

†This reference was called to our attention by S. Krasnov, whose courtesy is herewith acknowledged.

BREWSTER

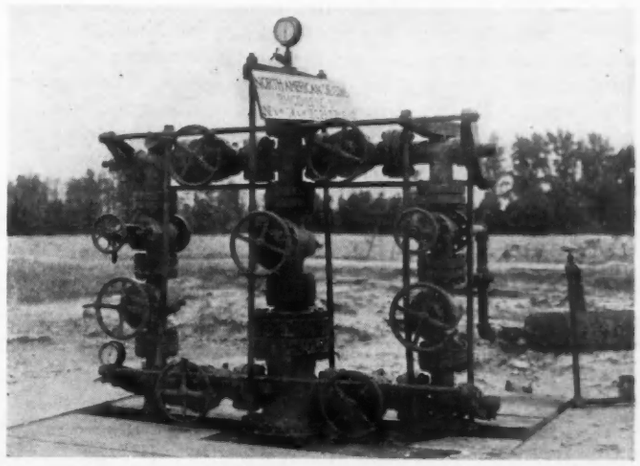
COMPLETE WELL ASSEMBLIES

The line of Brewster Well Assemblies is complete. You will find one to fit any well and casing combination and capable of handling any pressure.

Capable engineers will be glad to work with you in designing a well assembly to fit your exact requirements.

Every Brewster Well Assembly is severely tested with kerosene under the prescribed pressure. This pressure must be maintained for 72 hours before the assembly is given our final OK and sent to the field.

Write, wire or phone us for complete information and prices before you buy the assembly for your next well.

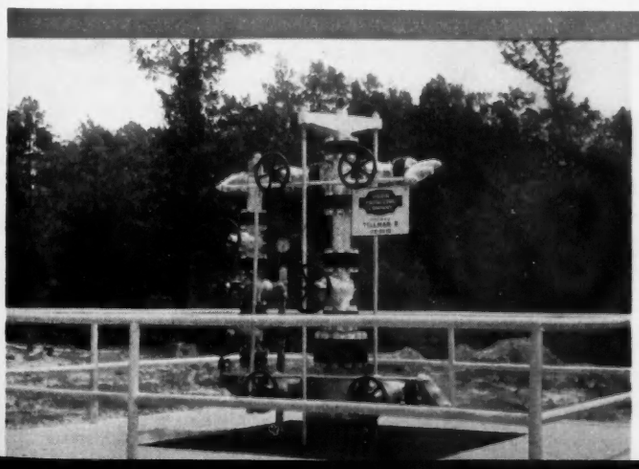


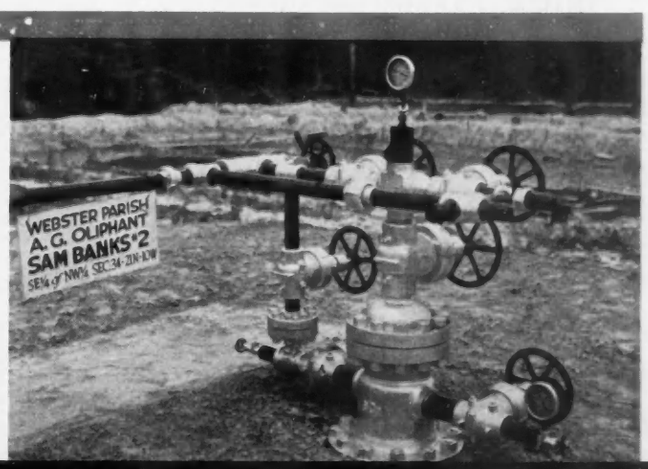
THE BREWSTER COMPANY, INC.

PHONE 2-3181 **SHREVEPORT, LA.**

LONGVIEW **NEW IBERIA** **HOUMA** **LAKE CHARLES** **RODESSA**

EXPORT OFFICE: ACME WELL SUPPLY CO., 136 LIBERTY STREET, NEW YORK CITY





Records . . .

THEIR PLACE AND VALUE AS A FUNCTION OF COMPRESSOR STATION OPERATION

By FRANK TAYLOR, Staff Writer

ACCURATE records and forms explaining past performances are of direct and actual value in the efficient operation of gas-compression stations. Records are an important function of both operation and maintenance. Their chief value is in the ability of the information set down to accurately interpret the overall efficiency of station operation under the conditions existing when the report was compiled. This ability of a report, its quality of being able to give results of operations under a known set of conditions, is frequently used as a basis for determining future load and horsepower factors.

Past performance, as outlined on filed reports, is a key consideration in arriving at operating and maintaining budgets for following fiscal years. Proportions are generally a stationary influence in expenses, and may usually be scaled on a horsepower gradient. Stock used in relation to engine hours operated is a direct, recorded function of expense. Replacements and routine reconditioning are generally in accordance with degree of operation, and are in this manner directly related. Major replacements, especially where the equipment is of high horsepower rating, or replacements and reconditioning work done with a minimum of station operation throw off the normal relationship existing between horse power developed and cost of operation; but again, this is reflected in the records.

Simplified Reports

The multiplicity of forms and records, showing practically the entire life of every single piece of equipment, plus the per-penny cost of maintenance, are swiftly becoming a nightmare of the past. The modern record is composite, without being complicated. This departure has eliminated much of the meaningless clerical work demanded of engineers and clerks, and has simplified the matter of accurately recording operating functions. The value of records is decreased every time an engineer must set down facts that cannot later be used, or that are repetitious.

The trend away from the complex, superfluous variety of forms for every department in gas operation is most markedly apparent in the condensed version of station schedules. Construction, station layout and unchanging station equipment still demand about the same set of records made popular by the first expanding natural gas systems that blossomed into intercity distribution throughout the Eastern States. They carried fundamentals equally necessary to today's operation. Curtailing of number, meaningless items, and expense of printing has aided in making all reports more comprehensive.

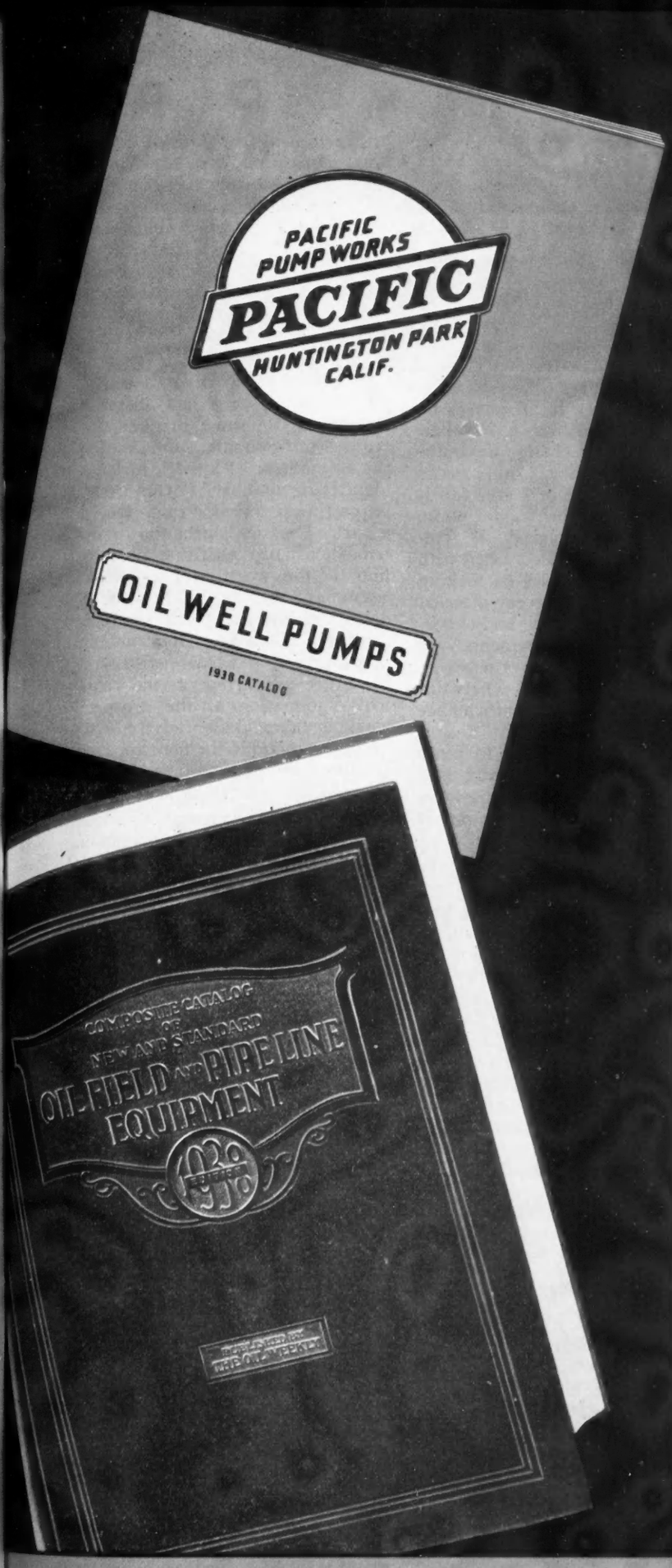
Records having an integral part in compression station functions are divisible naturally into three major heads. These include design and maps, records of maintenance and upkeep, and operating forms. In past years, stock forms for showing oil, etc., held in storage for operation were widely used, but the more modern definition of operation more accurately describes these items as being strictly part of the operating expense, and therefore the items are included in such heads, rather than under an individual listing. Some compressor stations, in particular those serving as sectional key stations, repair shops and warehouses necessitate the keeping of records not actually a part of compressor station work. As the keeping of these records depends upon the service of the units located at the site in addition to the station proper, they will not be dealt with here.

Design and Maps

A large proportion of the equipment of a gas compressor station is buried. Most of the piping is underground, the lines including suction and discharge gas, cooling system water, steam for pumps in cellars, fire lines and lubricating oil lines. Power cable is often buried in protecting conduit. Other services may be through underground lines to sumps, reservoirs or water sources.

Location of each buried fixture and line, with size, capacity or pressure rating, approximate depth below surface, use, and other individual characteristics should be the subject of a complete, up-to-the-minute map of the station grounds. On pipe lines and conduit, each "T," connection, box or opening should be noted with exact footage from some unchangeable location. Pipe line ells, sleeves, swedges and other fittings, especially valves, should be listed and shown.

Whenever new lines are put down or other changes are made, as they are bound to be, the new work should be shown in detail on the original or a corrected copy of the map. A station-layout map is a primary requisite in checking leaks, in changing service from one line to another, and in making connections. The lack of such knowledge of previously-laid lines has made it necessary on numerous occasions to dig up half a compressor station yard before locating a particular line or connection. Frequently such excavation uncovers lines and fittings that were forgotten years before, and that take the operators completely by surprise. An instance recalled concerned loss of gas, and



SEE PAGE 1584

Inside the brown cover at page 1584 in the 1938 Composite Catalog you will find a condensed encyclopedia of facts about Pacific Oil Well Pumps. Twenty-eight pages of specifications and information show how to get long life from the special quality materials in these Pumps and how to get more production from their friction-free streamlined design.

In addition to oil well pumps and parts, remember that "Pacific" stands for quality and experience in Hot Oil and Turbine Pump manufacturing. Look for the brown cover at Page 1584.

PRODUCTS

R.S.L. OIL WELL PUMPS
R.C.D. OIL WELL PUMPS
T.S.L. OIL WELL PUMPS
CENTRIFUGAL PUMPS
DEEP WELL TURBINE PUMPS
HOT OIL PUMPS

PACIFIC PUMP WORKS

HUNTINGTON PARK, CALIFORNIA

was finally traced to an inch line on the boiler supply. The line was welded to the supply, angled off toward a corn patch, and suddenly stopped bluntly, having neither threads, bull-plug nor valve connected.

The cost of unnecessary time in hunting for un-recorded lines is a serious item of overhead. At times the actual loss in man-hours is small in comparison to lost hours of operation. Certain dangers always exist in attempting to make connections to lines without knowing the exact service they have seen. Cutting into a water line only to find it contains oil or gas has resulted in more than one fire.

One of the customary manners of indicating the service to which a buried line or piece of equipment is put, is through a color key. Adapted to compressor station use, the method shows all gas lines in red, air lines in yellow, steam in brown, water in blue, etc. Blue print copies must show in some other manner.

Structural foundations for all station buildings should be a separate map. Breaks, and changes made following architectural design should be indicated, and the reason for the change should be noted. Engine foundations are a separate consideration.

In designs, each part of a large compressor unit is drafted individually. The breakdown of the parts, and their functional relationship make a complete file in themselves. Heating systems, air cleaners, pump installations, boilers, and all other pieces of station equipment are customarily designed for files. These are all a part of the records, and although primarily related to construction, are used in replacements and operating adjustment.

Although the value of having complete maps of foundations, lines and other buried equipment is recognized by every engineer and superintendent, negligence often results in lines becoming lost so far as any record goes. By the time it is necessary to locate one line, it is probable that others have been forgotten. Years ago there was no manner in which lines could be traced from the surface. New instruments working on the principle of capacitative bridges may be used as finders in locating and tracing lines. These are similar to the ore deposit instruments, and usually include a loop and triode tube with 'phone on the output side. With a little practice it is easy to trace lines through many changes, and often fittings in the lines or conduit can be correctly called through the response.

Records—Maintenance and Upkeep

Forms for the purpose of keeping a record of all adjustments and replacements to station equipment have been curtailed by most concerns to a fraction of their former volume. This has been due to two primary causes, the first of which was the necessity of greater economy in all phases of operation and maintenance. Paralleling this requisite, a change in equipment was taking place. Compressors and power ends were of better fabrication and lasted longer. Water pump parts were not replaced as frequently. Interruptions decreased with maintenance, and instead of making periodic inspections of every piece of machinery by dismantling and checking with prior measurements for wear and alignment, the practice of making repairs when and where indicated became general. Performance records showed the life of a unit from the time of purchase to junk. These have now been turned into cost records showing comparative analysis in relation to power developed or hours operated.

Although the continuous inventory method of accounting for repairs and inspections of equipment is going into the discard, its manner of recording is being used in other branches of the gas industry. Parts or accessories head columns of the forms, usually being numbered as placed at the station or within a structure. As an instance, if a lay shaft was removed and turned down at the end, the part being on the left side of unit 1, the notation would be in the correct column under Unit 1, and would show what and when work was done, as—4-4-38/T&R, this meaning that the item in which column the entry is made was turned and replaced, April 4, 1938. If the part had been replaced with new, the entry would have been 4-4-38/N. Remarks might further explain the work. By keeping up to date such a record the operator or superintendent can quickly check repairs and adjustments, and can readily note when the last inspection or replacement was made. The last entry always tells the story. This same idea of progression is apparent in other forms, particularly those showing stock on hand.

Although records of all station structures are always available at some office, these are not considered a part of the individual station clerical work. When files of structures are kept at stations, they are very brief, showing the date of construction, fabrication, type and specification. Cost accounting is through replacements and repairs.

Legal, tax and other documentary information of this character is a part of the general office information, and is there kept. Information for this filing originates through other sources and is only distantly related to operation or maintenance.

Maintenance work of a semi-major character, or a new installation classed in the same manner, might require an estimate submission and the assignment of a work order with identifying number. Forms used for requesting permission to do work not a part of regular operation or maintenance usually constitute a brief outline of the work to be done. The reason for the job, where to be done or in relation to what equipment, materials necessary, labor necessary in man-days, and total estimated expenditure are listed on the request. This summation of the prospective work is taken under advisement by executives, and if the task apparently justifies the expenditure, authority is given the issuance of a work order.

Upon completion of the job, it is general practice to make a resubmission of the work order, showing the actual expenditure, the exact work done, location, etc., so that records may be complete and maps corrected. This is also necessary for tax purposes.

Purchase requisitions, material invoices and transfers are a constant part of operation and maintenance. These forms are of general purpose, the first two being more nearly standardized by various firms than are possibly any other type of record. Transfers are to keep a check of the location of any piece of equipment, or to correctly charge an item of stock to the plant making use of the material. When an item is charged to one station, but is moved to a second station where it is used, a quadruplet notation shows the move of the item, acting as a charge transfer. One copy goes to the receiver of the equipment, one copy is filed at the station making shipment, and the two remaining copies are for general office accounting.

Forms for specific or special divisions of plant maintenance are usually limited in number to the activities and uses of station equipment. Water-treating equipment may demand a set of records showing hardness and treat quantities. Telephone equipment, employe residences, sulphur tests and other functions not a part of regular compressor-station

Schlumberger ANNOUNCES TERMINATION OF INFRINGEMENT SUIT AGAINST GEOANALYZER

In the suit for infringement of Schlumberger patent No. 1894328 involving the electrical logging of drill holes, brought by Schlumberger Well Surveying Corporation against Geoanalyzer Corporation in California, the following decree was entered by the United States District Court for the Southern District of California, Central Division, on June 9, 1938.

IN THE UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF CALIFORNIA, CENTRAL DIVISION

Schlumberger Well Surveying Corporation, Plaintiff, vs. Geoanalyzer Corporation, Defendant.

In Equity No. 873-S

FINAL DECREE

THIS CAUSE came on to be heard at this term and the Court having been fully advised in the premises, and it appearing that Lane-Wells Company, a corporation, has conducted the defense of this suit on behalf of the Geoanalyzer Corporation, the Defendant herein, and is privy thereto, now thereupon consideration thereof it is — ORDERED, ADJUDGED AND DECREED AS FOLLOWS:

1. That the Plaintiff, Schlumberger Well Surveying Corporation, is the sole and exclusive owner of all the right, title and interest in and to United States Letters Patent No. 1894328.

2. Patent No. 1894328, having been duly issued by the United States Patent Office is presumptively valid as to the single claim contained therein.

3. The use of an automatic recording device in the place of manual determinations of electrical values in such a device disclosed in the patent in suit is the equivalent thereof.

4. That the Defendant, Geoanalyzer Corporation, has infringed upon said United States Letters Patent No. 1894328 by making and using Electrical Devices for the Determination of Specific Resistivity embodying and containing the invention of said Letters Patent as set forth in the claim thereof.

5. That an accounting and costs having been waived by Plaintiff, there shall be no accounting by the Defendant of profits or damages, nor shall costs be taxed against either party herein.

6. That an injunction shall issue out and under the seal of this Court restraining the Defendant, Geoanalyzer Corporation, its officers, directors, associates, clerks, servants, agents, workmen, employees and confederates and each of them from directly or indirectly manufacturing, using or selling or causing to be manufactured, used or sold, or threatening to manufacture, use, or sell Devices embodying, employing, containing or adapted to practice the invention and improvements or discoveries described and claimed in United States Letters Patent No. 1894328.

7. Lane-Wells Company is in privity with the defendant herein.

Ralph E. Jenny
United States District Judge.

DATED: June 9th, 1938.

APPROVED AS TO FORM UNDER RULE 44:
Lyon & Lyon,
Leonard S. Lyon,
Attorneys for Defendant.

Decree entered and recorded June 9, 1938.
R. S. Zimmerman, Clerk,
By Theodore Hocke, Deputy Clerk.

(ENDORSED)

FILED JUNE 9, 1938 R. S. Zimmerman, Clerk,
By Theodore Hocke, Deputy Clerk.

In connection with the termination of the litigation between Schlumberger Well Surveying Corporation and Geoanalyzer Corporation (defended by Lane-Wells Co.) by entry of the above decree Geoanalyzer assigned all of its patents and applications relating to electrical logging to Schlumberger, Schlumberger granted to Lane-Wells a license under all of its patents relating to electrical logging, and Lane-Wells granted to Schlumberger a license under all of its patents relating to gun perforating.

SCHLUMBERGER TAKES PLEASURE IN ANNOUNCING TO THE OIL INDUSTRY THAT IT WILL SHORTLY OFFER A COMPLETE SERVICE IN GUN PERFORATING WHICH HAS BEEN PRACTICED SUCCESSFULLY FOR YEARS IN FOREIGN COUNTRIES.

SCHLUMBERGER
WELL SURVEYING CORPORATION
HOUSTON, TEXAS—U. S. A.
"Electrical Well Logging"

procedure are noted through records that must be devised to suit a particular requirement.

Operating Forms

One of the annoying tasks at a compressor station is to separate the minor maintenance items from operating items. There is a very fine distinction between these two heads, and there is no unfailing rule to use as a judge. Some firms have set a maximum of about $50.00, anything less than that falling into the questionable border zone is automatically listed as an operating item, and costs above the figure about which some question might be raised, are counted as maintenance. Probably one of the best definitions distinguishing between operation and maintenance is: "Any expense or part or labor having no direct relation to operating routine is an item of maintenance." Although the statement appears to define quite well the difference between the two possible heads, there is still wide latitude in a decision.

Of all operating reports, the daily summation of activity is the most important, and is probably the most essential operating record compiled by any division of a gas-transporting company. There is considerable difference in the forms as used by various firms, but all are designed to tell about the same story.

As the chief function of a compressor station is to add energy to volumes of natural gas by confining within less space, or by boosting the pressure, the volumes and pressures of gas handled into and from the station are items of major importance in the daily operation of the station. These volumes are generally measured in two ways. First, the gas is metered either through orifice or positive displacement meters, the former usually being used. Second, the gas is volumetrically measured through compressor-cylinder displacement by computing the displacement travel of one complete stroke of the compressor-chamber piston, minus corrections for rod volume, valve lag, etc., and multiplying this calculation by the aggregate number of revolutions per operation period, generally a day. The facts for these measurements are either recorded on a meter chart or are recorded on the daily operating form. It is difficult to check these two means of measurement perfectly, as there are so many influencing factors, including super-compressibility, temperature, exact input pressure, surges produced by operating machinery and less common factors. Gas used as boiler fuel, or for other station purposes must be added to output to compensate for its use. These latter volumes are also of record on the regular forms.

Another item of primary importance in station operation is the temperature control of gas, cooling waters, cylinders, etc., including checking warmth of wrist pins, crossheads, main cranks, and other important bearings. These are usually checked hourly, many being made a matter of record. The atmospheric temperature is of importance and is hourly checked except where recording atmospheric thermometers are used, in which case the record is obtained on a chart.

It may become necessary in locating a chronic trouble through a study of regularly-submitted records to refer frequently to the temperature of output gas, jacket water or other temperature representing a function of equipment operation. A temperature differential may be much greater than normal to indicate an error, or may be less than it should be. A reference to the shift time and operating engineer in charge can often solve such questions.

Briefly, other items that should be included on daily operating forms are starting air pressures at change of shift, auxiliary engine hours operated, power supply if any, steam pressures, down time, intermediate pressures, pressure orders, water reserve, oil stock and remarks. Of these, all but the pressure orders are a function of the station operation. Orders generally concern changes in discharge pressures on one or more outgoing lines, or may less frequently call for holding a specified back pressure upstream. Interruptions should show causes, total time, and necessary repairs or adjustments. Changes in field production are sometimes desired under remarks to account for operation change. Anything that may affect the normal operation should be accounted for on the record.

Each engineer should sign over his shift when a change is made, and the superintendent should countersign the record before it is complete. The time element is important in records of this nature. The hour of starting a report is usually a debatable point, and for this reason many firms prefer operating schedules beginning at midnight of one night and ending the following midnight. This places every entry on a single report within the range of a single day.

Reports that begin at early morning shift change time, as at 7 a.m., usually coincide with the time charts, showing station measurements of gas and temperatures, are changed. This allows the new day to start with the charts which form a part of the record. However, the shifts are so arranged that the day starts on one calendar date, and ends on another. This is often confusing and when the system is used it has been found advisable in the majority of instances to have actual notation of the hour upon which the report begins and the hour of closing.

The continuous-invoice system of checking is frequently used on regular daily operation sheets to show oil in stock, used, and received. The oil on hand is entered, oil received of the various grades is added, oil used is subtracted. The last entry is the oil on hand as the record was closed. Other items, as rags, kerosene, etc., are accounted for progressively, in similar manner.

It was a former practice to have separate records for the auxiliary and for the main engine or compressor room. This is largely a practice of the past, the modern method of operation is shown on a single form having entries for auxiliary information. Remarks can be used to cover a multitude of changes, errors, interruptions and operating functions not normal to general operation.

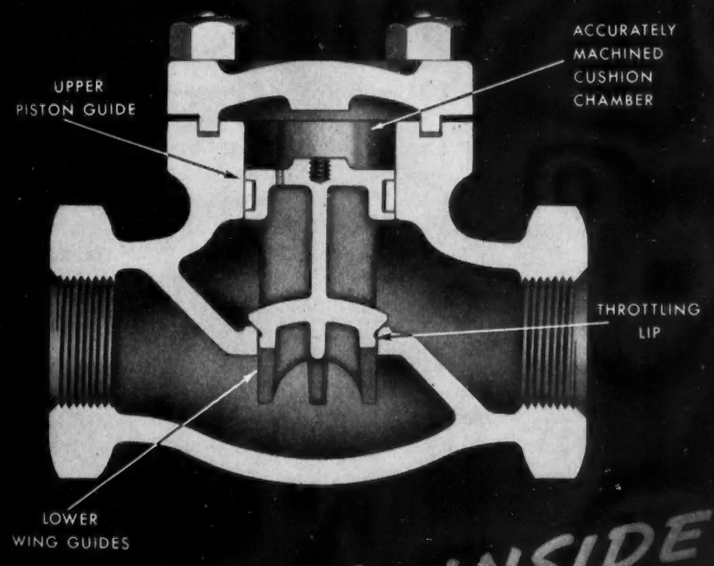
Although activity reports have been an important record in past years, they have been almost wholly replaced recently. These forms were a general summation of all activity at the station during the previous week. They showed hours operated, horsepower developed, regular labor in man-days, additional labor in man days, repairs, and other items. The more informal letter has taken the place of the activity report, and is much to be desired. Aside from the horsepower developed for the period and similar entries, the other items for the activity reports were highly special and not of a nature readily explainable on a form. Horsepower, etc., were items contained in other reports, so their inclusion on the report was a repetition. The general weekly letter is far more explanatory, less cold, more direct and requires less time than the outmoded activity report.

Aside from highly specialized records and reports, the balance of compressor station record service is in the nature of monthly correlations of weekly and daily information. These show oil output to horsepower developed, total gas passed, total fuel used, total horsepower-hours operated by each unit, and similar data. At the end of the year this information is a record of the stations' operation for the past year.

CUSHIONED CHECK VALVES

for Unusual Service IN THE PETROLEUM INDUSTRY

Crane No. 1507½ Ferrosteel Cushioned Check Valve. Cross section shown below.



IT'S WHAT'S INSIDE THAT COUNTS!

Step out into the plant—any plant, on process lines—power lines—wherever the flow of liquids and gases is controlled, you will find check valves. Their function—preventing dangerous back flow—is most vital in many piping systems. And because the conditions which they must meet vary widely, check valves deserve more care in selection than valves of any other type.

Regardless of the service, there is a Crane Check made to meet just those conditions. For example, consider those lines where pulsations in flow or intermittent service cause a serious slamming of the disc, which quickly destroys valves or necessitates extensive repairs. Here the Crane Cushioned Check offers distinct advantages. It freely permits flow, but cushions the pulsations and permits long, economical service. Every Crane Check has back of it the Crane resources of skilled engineering, extensive laboratory tests, quality manufacture and careful inspection.

When you need check valves, be sure to get the recommendation of the Crane Representative. Also, ask him for a copy of "Checking up on Check Valves," Crane's new booklet, which will be a real help to you in understanding the many different types of check valves and in selecting the correct type for the service you require.

CRANE

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO

NATION-WIDE SERVICE THROUGH 134 BRANCHES AND MORE THAN 500 WHOLESALERS

Choking Practice

EXPERIENCE DICTATES THAT BEST METHOD IS TO EXPERIMENT UNTIL THE BEST RESULTS ARE OBTAINED IN THE INDIVIDUAL WELL

By BRAD MILLS
Associate Editor

USE of chokes, flow beans or definite restrictions is standard practice in all high-pressure oil and gas fields. The practice originally was the outgrowth of a desire to conserve formation energy, but more recently it became a greater necessity because of proration. These two factors remain the most important considerations in the use of chokes.

The open flow of wells and resultant failure to hold a back pressure on the producing formation led to the complete loss of large volumes of originally recoverable oil in abused areas. Failure to restrict the flow also greatly increased the recovery cost of oil in fields that quickly went on the pump or went to water. The abuse of generous formations called for the adoption of back-pressure maintenance of some type, and the flow bean, or choke provided that means. The current use of a well choke is simply a refinement of the original effort to conserve formation energy. Proration, as a more recent and modifying influence, has depended on the choking principle for several years.

Choking practices divide oil producers in several groups. One division uses any type choke or valve that gives the desired production; another expects a choke to perform impossible tasks; and a third experiments until the best choking practice is found. Unfortunately the last group is vastly in the minority.

A flowing well usually requires more attention during its early and late flowing stages than during its intermediate flowing period. Determination in the beginning of the most effective flowing rate is important, while a constant study of well response during the late flowing stage often extends the flowing life. The intermediate flowing life of the average well is ordinarily less erratic than either the early or late flowing stage, but changes in formation conditions are enough to warrant regular inspection of choke response at any period. The use of chokes has been both minimized and over-emphasized, but in the main it has been a neglected practice.

By Trial and Error

The operator should not get the idea that he can correct serious completion blunders by using clever or "tricky" choke arrangements. When definite water or gas formations are drilled and included as part of the producing strata, an unsatisfactory flowing condition should be expected. The best choke arrangement often minimizes an undesirable flow, but it is very difficult, if not impossible, to change the fundamental flowing characteristics of a well.

Almost every flowing well has its best or critical choking point, and the operator can learn this point only by trial and error. In flowing wells that show excessive gas or water, the best choke arrangement should be found and used, pending necessary well repairs. Even in the more satisfactory flowing wells it is best to find a choking point that gives best results.

All of the standard adjustable chokes give good service when used correctly, but a choke of any given type should not be regarded as a panacea for all troubles. The proper use of chokes on flowing wells is an important aid in the control of factors that give the most efficient operating results. Many oil companies give little attention to the temperamental nature of the average medium-pressure producing well, particularly those showing excessive gas or water.

The first chokes used were positive in action and were nothing more than steel nipples with small openings. Chokes of this type held the desired back pressure on the producing formation, but sand scored and cut the flow nipples out in a short time in several high-pressure fields. Under desirable producing conditions the positive choke gives good service, and various refinements of this type restriction have appeared. Clean oil seldom gives trouble, but sand, lime and water have a cutting effect that soon damages flow connections.

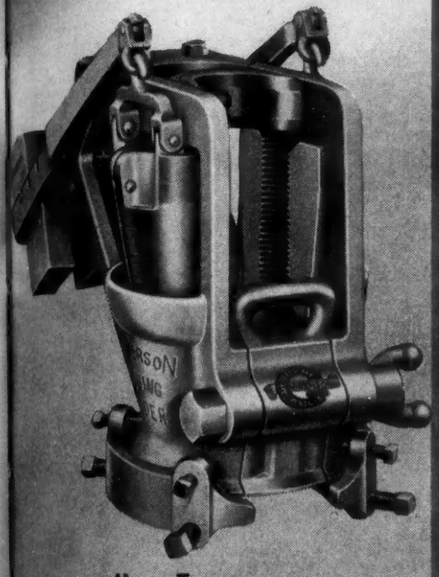
Eliminating Sand Cutting

The use of tapered chokes of a semi-positive type has given exceptionally good results in several troublesome areas. The first choke of this kind was made several years ago to overcome the cutting action of sand and fluid. In the old-style positive choke or flow nipple, fluid and sand had been cutting out connections in a very short flowing period. A close examination revealed that the quick release of the flow at the outlet of the bean had permitted the sand and fluid to veer at right angles and strike the flow connections at an angle of 45 degrees. The force of such a continuous glancing flow quickly cut through the flow connections at a point near the outlet of the restriction.

The installation of long, tapered chokes eliminated the cutting effect of the flow after it passed through the smallest part of the choke. The taper in this choke began at the point of greatest restriction and gradually increased for two feet to give a megaphone effect to the assembly. In this manner full choking to the desired opening was followed immediately by the two-foot taper that kept the flow in a forward direction. The cutting effect of the sand and fluid was reduced in the worst wells to a

SPEEDIEST Equipment

FOR HANDLING TUBING



Heavy Type—
For 2" to 4" Tubing
on any depth well

Medium Type—
For 2" to 3" Tubing.
Will support up to
5,000 feet of 3"
upset tubing

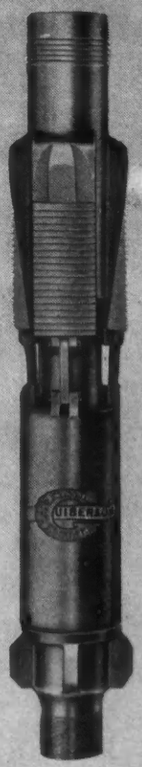
THE GUIBERSON TUBING SPIDER, because of a patented, exclusive feature—its "guide head"—is far speedier and more efficient for handling tubing than any other device.

Guide Head is set to guide tubing into exact center of spider's bore. Slips then set accurately and automatically, without manual handling, operated by the semi-automatic weighted lever, which is controlled by one man regardless of weight of slips. Here is the perfected device for its purpose. It DOUBLES speed of running in or pulling tubing.

The GUIBERSON TUBING CATCHER completes the job of fully protecting the tubing string. If a break occurs for any reason, at any time while tubing is in well, the tubing's fall is stopped within 3 inches. This catcher was the pioneer and has continued to pioneer in improvements. All load-carrying parts are of steel; slips are of scientifically correct area; perfected springs are non-fatiguing; by-pass area is ample. More than 100,000 have been purchased, by the industry.

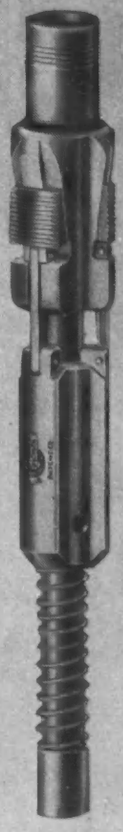
See GUIBERSON Complete Catalog
Pages 787-834, 1938 Composite Catalog

THE GUIBERSON CORPORATION
Box 1106, Dallas, Texas
Export Office: 30 Rockefeller Plaza, New York



Type E—
For wells of
any depth

Type E—
With Guiberson
Tubing Catcher
Anchor



Type B—
For wells up to
4,000 feet

BETTER BE SAFE THAN SORRY
GUIBERSON

GUIBERSON

point that permitted use of a choke for several weeks.

The release of fluid or gas from short, definite, "square - shouldered" restrictions results in an explosive action in the larger compartment outside the choke, due to expansion. It is this sudden dissipation of pressure that violently throws the pressure against the connection at angles of 45 degrees. Obviously, parts of the flow are thrown straight ahead through the choke and at various angles, but the flow striking the connection at an angle of about 45 degrees has the greatest cutting action. The flow connection beyond the small choke would invariably cut out a few inches from the mouth of the choke.

The tapered choke also has proved very effective in producing high-pressure gas and gas-distillate wells, where the explosive and expansive action immediately beyond the positive or conventional choke had resulted in freezing. A freezing action has been encountered in several gas and high gas/oil ratio fields. The use of tapered chokes connected in series or stages, has reduced the freezing action in high gas/oil ratio wells in the Old Ocean, Texas, field, where the flowing pressures are very high. In the tapered choke the expansion of gas takes place along a two-foot run, rather than suddenly, as in a positive type choke. The tapered choke should not be considered a solution to all choking problems, however.

In choking the average flowing well, the adjustable choke offers several advantages. Its ease of adjustment and accuracy are appreciated, and its serviceability under average conditions is unquestioned. Chokes, however, are like drilling bits, and no one should be expected to give uniform service under every condition. Well conditions and not the choke often should be blamed for trouble.

Quick changes in choke sizes should be avoided in any flowing well. The new, high-pressure producer may not appear to be materially affected by a change in choke sizes, due to its great reserve of flowing strength, but if it were possible to measure the reaction of the formation to sudden choke changes, the operator would see the danger that lies ahead. The relatively small change in flow restriction at the surface sharply affects the flow of fluid and gas in the formation at points considerably removed from the well bore. The sudden increase in choke size often attracts water that otherwise would approach the well in a gradual manner. Doubling the size of a choke seriously lowers the back pressure on the producing formation, although for the moment there may not be an appreciable increase in the gas/oil ratio, or in the percentage of water if the well shows a nominal water cut.

A radical or quick change in the size of a choke on a weak flowing well often causes violent fluctuations in formation response, since such producers do not have a high flowing reserve. A well flowing at a low rate through a ½-inch choke should not be cut back to a ⅜-inch or ¼-inch choke at one reduction. Such a change in choke sizes should be completed by a series of 1/64-inch reductions, allowing from two to four hours between each change. This gradual reduction in choke size allows the formation to adjust itself to the smaller surface opening. The quick increase in back pressure caused by a radical reduction in choke size may be more than a weak formation can stand, and wells showing water often are killed outright by rapid downward revisions of surface outlets. The average weak well stops flowing from causes that would not seriously affect stronger flowing wells.

The average field has a critical choking point for each well, and changes above or below the ideal openings result in decided fluctuations. In many light-oil fields a reduction from the critical choking point brings an increase in the gas/oil ratio, the increase in back pressure apparently permitting the gas to come out of solution.

Control of Water Cut

In flowing wells that produce some water, the origin of the water often determines the effect each choke variation has on the percentage of water produced. In representative fields slight variations in choke sizes do not materially change the water cut, but where the water originates near bottom and distinctly below the principal producing stratum, higher percentages of oil may be obtained by using larger chokes than those that barely give the desired production. The larger surface opening often frees the upper oil-producing strata to the disadvantage of the lower water-producing strata. The increase in oil production is caused by a reduced resistance to flow shown by the oil and by the greater resistance to flow shown by the water.

The use of comparatively large chokes has been necessary on wells that make an appreciable amount of salt water. The larger surface restrictions prevent the accumulation of water in the tubing and casing, a condition that often kills weak wells. The use of small chokes results in a satisfactory rate of flow for a time, but the action of the salt water soon kills the flow. Weak wells of this type that normally flow a good percentage of salt water through larger chokes, will flow practically clean oil for a short time through very small chokes, and die after becoming water-logged. It is difficult to restore such a well to a flowing status.

Wells in many fields are choked to produce their full allowables in 24 hours, but other groups are choked to flow their full daily allowables in much shorter periods. The well allowables are much lower than the maximum that could be produced without damage to the formation in many light-oil fields, and the use of chokes that give the daily allowables in from 8 to 14 hours is not an objectionable practice.

In the East Texas field no standard choking practice has been adopted in the average flowing well. Ordinary valves are extensively used. Since paraffin gives trouble, wells are flowed for a short time at a high rate to obtain beneficial effects from the warm oil. A slow rate of flow gives the paraffin a better chance to accumulate near top of the hole. A large well in the East Texas field will flow its full daily allowable of 24 barrels in a few minutes without damage to the producing formation. Where wells are threatened with water encroachment, more care is exercised in production methods.

Old chokes should be tested for wear, where producing conditions are severe. Loose sand, lime deposit or shale often enlarges choke openings, but the worn choke may be nearer the correct size than the original opening. In one field a worn choke that calipered only 1/64-inch too large was replaced by a new choke of the original size. Production with the new and smaller choke fluctuated violently after the change was made. A 1/64-inch larger choke was installed and the well soon started flowing at an even rate. The well produced a high percentage of water, and nothing less than the worn size choke would give results. The wells in this field are famous as temperamental producers because of water, and will not produce steadily with chokes smaller than the critical sizes.

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

No Solution Near

Mexico City oil circles scoff at idea of immediate settlement . . . Bond issue flops . . . U. S. aid is asked

OIL circles in Mexico City June 30 scoffed at the press interview announcement June 29 by Supreme Court Justice Octavio Trigo in Monterrey to the effect that there will be an early settlement of the oil problem on the basis of the companies' receiving 62 percent of Mexican production, less export taxes, until payment for the expropriated properties has been accomplished. Oil men averred no settlement was in sight.

Justice Trigo withdrew from consideration of the case between the companies and the workers shortly before the Mexican supreme Court March 1 upheld the federal conciliation board's wage award, explaining at that time that the companies had accused him of partiality, THE OIL WEEKLY was informed. He is reported vacationing in Laredo, Texas.

Bond Issue Flops

Hard on the heels of the recent action of the Mexican senate in ordering a special investigating committee to attempt to dig up evidence showing the oil companies had obtained title to their properties fraudulently and were, therefore, entitled to no indemnity (see THE OIL WEEKLY, June 27), President Cardenas June 26 ordered suspension of issuance of the 100,000,000 peso bond issue authorized by congress to pay the companies for their properties.

It was pointed out that the order for investigation looked like a deliberate attempt to avoid fair and equitable settlement for the properties. Further, it is felt in some circles the most recent action of the government in ordering suspension of the bond issue looks like another step in the same direction. The original objective of the bond issue, 100,000,000 pesos, was equivalent in U. S. dollars to about $22,500,000, or slightly over five percent of what the expropriated properties are commonly valued at. It is said Cardenas' financial advisors told him it would be difficult to put a Mexican bond issue of more than $11,250,000 on the market.

Early in June it was reported that the state department of the United States was trying to get over to the Mexican government the idea that Cardenas' action was seizure, rather than expropriation. No official announcements were made concerning this rumored step, but last week representatives of the oil companies again contacted the department of state in Washington. Secretary of State Cordell Hull gave an audience to Donald L. Richberg, former NRA administrator, who represented Standard Oil Company of New Jersey interests. He also received Patrick Hurley, secretary of war under President Hoover, on behalf of Sinclair interests in Mexico. Both are said to desire the state department to take a more active part in regaining the properties or getting a satisfactory cash settlement.

Berates Companies

With greater ear being given to the so-called pessimists in the country (those who do not agree with the social, economic and political policies of the incumbent regime), Cardenas and his colleagues have for the last several weeks lost no opportunity to prejudice Mexicans against the oil companies which were expropriated. Cardenas personally has made hardly a public appearance of any consequence since March 18 without taking advantage of the opportunity to harangue the people with tales of how those companies have contributed to the misery of Mexicans. In a recent speech in Cerro Azul he accused the oil companies of making many of the workers ill, of leaving them in that condition, and of affording the country no good whatsoever.

In answer to this some of the pessimists ask, "If the companies afforded the country no good whatsoever, then for what purposes were the millions in taxes paid the government by the companies spent by the government?"

Attention of THE OIL WEEKLY is called to the habitual stand of Cardenas on the privilege of workers to strike—when the companies were running the oil business—and to the contrary fact that the government has not been very tolerant toward strikes since it took charge of oil industry affairs. For example, the recent strike that suspended work of Compania Petrolera Cosmos, S.A., a small independent operating in Veracruz, was promptly put to an end by federal intervention.

Promises Benefits

Referring to the original demands of the oil workers, refusal to meet which allegedly caused Cardenas to expropriate $400,000,000 worth of oil properties, Cardenas told the people of Cerro Azul, "The oil workers must not despair or lose hope because the ruling of the labor authorities, which was upheld by the supreme court, has not yet been put into effect." (The supreme court ordered the companies to meet demands which they considered preposterous.) "Our oil exports are not very great; but as soon as they are realized, not only will the conditions of the workers in this district be improved, but the government will be able to put into effect a social-economic program that will be of utmost benefit for the oil workers of the entire oil region."

The pessimists on the Mexican situation allude to the above promise when they say that it, like the government's announcements of export shipments of petroleum, is vague and indefinite, holding forth nothing specific.

One man who believes that the expropriation was bad business judgment on the part of Cardenas—bad for Mexico—observes, "If some Mexicans feel that the country at large has not suffered the action of Cardenas and that only the oil industry workers bear the brunt of the privation, just let them remember that Mexico's total exports in 1937 amounted to $828,000,000 and her imports, $608,000,000, and then wait for the figures on 1938 exports and imports. Those figures will paint the picture clearer than any amount of political oratory, pro or anti Cardenas."

June 29 it was officially announced by the Mexican government's oil export organization that the first shipment of oil to England since expropriation, one of 103,000 barrels of gasoline, 200 drums of lubricants, and a "large but unspecified amount" of miscellaneous oil products, was made for the account of W. R. Davis Company from Coatzacoalcos, Veracruz, on the tanker W. S. Lundgren, consigned to Penzanze, Cornwall.

On the same day, the tanker Marietta, laden with 100,000 barrels of oil, left Tux-

pan, Veracruz, for Europe under sealed orders, THE OIL WEEKLY was informed Reports are the Marietta's cargo is consigned to W. R. Davis interests and that it is for distribution in Germany, where Davis has refining interests.

Americans withdraw from Iran and Afghanistan

Inland Exploration Company has surrendered back to the government a concession on 240,000 square miles in Afghanistan and Amiranian Oil Company has surrendered its concession on about 190,000 square miles in Iran, according to an official announcement June 28.

The statement follows:

"Early in 1937 an oil concession was granted Inland Exploration Company covering Afghanistan; a similar concession was granted Amiranian Oil Company covering a portion of Iran; and a pipe line concession was granted Iranian Pipe Line Company for the latter country.

"During the past year, geologic field parties have been studying these areas and excellent oil possibilities have been indicated. However, because of world economic conditions and particularly those prevailing in the oil industry as related to supplies of petroleum readily available to world markets, the companies have decided to discontinue the work and to surrender the concessions.

"In announcing the termination of this work and the surrender of the concessions, officials paid particular tribute to the courtesy and splendid cooperation extended the companies by the governments of Iran and Afghanistan. Notice of surrender has been given the governments in accordance with the terms of the respective concessions."

Both companies are subsidiaries of Seaboard Oil Company of Delaware.

Watch Flank Test

Turner Valley extension attempt may be deepest in British Empire . . . Field potential 50,000 barrels

A mile west of production on the southwest flank of Turner Valley field, Alberta, Canada, Okalta Oils, Limited's No. 6, which promises to become the deepest well in the United Kingdom, is drilling below 8660 feet and checking favorably since contacting the Blairmore; Madison lime is expected at about 9500 feet. Completion should be at about 10,000 feet. Present deepest well in the British Empire is The Arca Development Company, Limited's High River structure wildcat, which was drilled to 8988 feet a year ago and abandoned. Location of the Okalta test is Legal Subdivision 3, Section 30, Township 18, 2-w5,

Royalite Oil Company, Limited's 30, mystery well on Legal Subdivision 11, Section 32, Township 18, 2-w5, farthest west completion in the south end of the field, was placed on a government production test last week to determine its potential. Officials have steadfastly refused to give out information on the well's production since its acidization several weeks ago, except to say that it is a "satisfactory" well. This company's 31, on Legal Subdivision 6, Section 29, Township 18, 2-w5, was drilling at 7015 feet, believed near the top of the Madison limestone, producing formation.

Neil McQueen and a group of Vancouver, British Columbia, associates have taken over the Rich-Well Oil Company, Limited's well on Legal Subdivision 5, Section 16, Township 18, 2-w5. It will be drilled from 2200 to 3500 feet, at which point a change will be made to rotary equipment.

On Alberta wildcat structures, 15 tests are active and several others preparing to start or to resume after a winter shutdown.

Deliveries from the Turner Valley field of Alberta during May totaled 448,363 barrels, setting an all-time record for Canada's principal oil field. Previous high month was March, with 406,644 barrels, while April deliveries were 379,213 barrels. A total of 1,991,814 barrels were delivered during the first five months of this year.

Potential of the field, materially increased by recent completion of producers in the 2000 to 3000-barrel class, is now approximately 50,000 barrels daily. Production is at the rate of 37 percent of potential with wells being permitted to operate six days a week.

The field's average daily output of 13,000 barrels during the past five months is less than one-eighth of the entire Canadian market, being sought by Western operators. Just how much of the Canadian market Alberta operators will be able to capture, however, depends largely upon results of efforts to obtain freight rates favorable for the movement of crude from the isolated Prairie province to the large consuming provinces of Ontario and Quebec.

Threaten to Build Line

Operators in Turner Valley will not be satisfied with a proposed preferential rate of $1.50 a barrel on crude shipped from Calgary, Alberta, to Ontario and Quebec refineries, but will proceed with negotiations toward pipe line construction east and west from the field, declared W. S. Campbell, president of the Alberta Petroleum Producers' Association.

The rate of approximately $1.50 a barrel was arrived at last week in negotiations between J. J. Frawley, K. C., counsel for the Alberta attorney-general's department, and railway officials in Ottawa. It hinges upon guarantee by East Canadian purchasers of a volume sufficiently large to provide a steady flow of crude by tank car. Campbell, commenting on the Ottawa conferences, declared the rate must be less than $1.00 a barrel, or the association "will take immediate action to consider some of the proposals already made to the association for the construction of a pipe line east and west of Turner Valley.

"On the evidence that is available on the cost of limestone production," Campbell added, "it would appear that the rate should be less than $1 a barrel to permit operators to receive cost of production. This is also assuming that the pipe line rates and loading charges now in effect will also be greatly reduced. This is naturally to be expected as the volume increases. It is to be hoped that this matter will not be delayed to the point where the railways will find it too late to reconsider. The greater the potential and crude oil reserves, the easier it will be to solve the problem of transportation and markets."

Czechoslovak petroleum production declines

Czechoslovak production of crude petroleum in April, 1938, totaled 1566 metric tons as against 1776 metric tons in March, 1938, and 1369 metric tons in April of the preceding year, representing a decline of 11.8 percent and an increase of 14.4 percent, respectively, says Edward B. Lawson of Prague.

The same tendency was noted in the output of natural gas which amounted to 118,283 cubic meters in April of the current year and was 16.2 percent lower than 141,175 cubic meters in March, 1938, but 5.6 percent higher than 112,003 cubic meters in April, 1937.

Cumulative production figures of crude petroleum for the period from January through April, 1938, aggregated 6486 metric tons, or a gain of 17.8 percent as compared with 5304 metric tons during the corresponding period of 1937. The total production of natural gas during the first four months of the current year amounted to 325,753 cubic meters, or an increase of 10.8 percent as against 474,276 cubic meters extracted in the same period of 1937.

International's production in South America higher

South American crude production of International Oil Company, Ltd., for May totaled 2,920,170 barrels, representing a slight increase over the 2,916,626 barrels in the corresponding month a year ago, and a substantial gain over April, 1938, when the output was 2,697,947 barrels.

For the first five months of this year, cumulative output showed a decrease at 14,039,321 barrels, compared with 14,396,984 barrels for the same period of 1937. An increasing larger percentage of the total output is being derived from the company's Columbia holdings, which during the first five months of this year accounted for 60 percent of the total. In the corresponding period a year ago, Columbia contributed 56 percent and Peru 44 percent of the combined output.

MEN IN THE INDUSTRY'S NEWS

R. E. HOLCOMB of the land department of Sunray Oil Company, Tulsa, Oklahoma, has been transferred to Los Angeles and placed in charge of a new office Sunray has opened in the Edison Building there. The California office was necessitated by Sunray's acquisition January 1 of interests in 65 producing wells in the Wilmington and El Segundo fields. W. H. Eastham, formerly production superintendent of the Oklahoma and Kansas divisions of the company was transferred last fall to California with division offices at Wilmington.

JOHN R. DAVIS, assistant to the Texas superintendent of production for Magnolia Petroleum Company, Dallas, qualified as a 15-year man for three weeks vacation under the company's new plan and is dividing his time between New York and Connecticut.

W. D. LATHAM, formerly tool pusher with Humble Oil & Refining Company, has been promoted to district superintendent in charge of the recently discovered Navarro Crossing field.

DR. R. J. GONZALES, economist with Humble Oil & Refining Company, Houston, was the principal speaker at the Houston Geological Society's weekly luncheon at the Lamar Hotel, June 30. His subject was "The Economic Conservation of Oil Resources."

TED A. HALL

who recently was appointed chief oil appraisal engineer for the First National Bank in Dallas, Texas. He left the post of chief engineer in the production division of Tide Water Associated Oil Company, after being with the latter firm for 16 years. Hall's association with the bank marks further expansion of its oil financing activities.

MICHAEL L. HAIDER

chief engineer for Carter Oil Company, has resigned to become a member of the engineering staff of the Standard Oil Company of New Jersey. He will make his headquarters in New York City, and will be succeeded by Ivan S. Salnikov, former division superintendent for the Carter company in western Osage County.

SIDNEY M. WITT, formerly with British American Oil Producing Company, Tulsa, has joined Sunray Oil Company, Tulsa, as auditor. Witt has been associated with the British American and its affiliates for the past 14 years in the capacity of general auditor, and prior to that he was connected with W. O. Ligon and Company, auditors and accountants.

W. S. FARISH, JR. of Houston, son of W. S. Farish, president of Standard Oil Company of New Jersey, recently was married to Miss Mary Stovall Wood, daughter of General Robert E. Wood, of Sears, Roebuck & Company of Chicago. After a wedding trip in Europe, Mr. and Mrs. Farish will return to Houston, where he is scout for Navarro Oil Company.

MAJOR JOHN BRYCE SHAW, North Texas district land man for The Ohio Oil Company at Wichita Falls, Texas, accompanied by Mrs. Shaw, is receiving active duty training at Fort Sam Houston, San Antonio, Texas. Major Shaw served with the 110th Machine Gun Battalion and the 6th Infantry during the World War.

HARRY DUNN, ALBERT ELKIN and HAROLD STAMPER, all of Mattoon, Illinois, have organized Black Gold, Inc., to engage in oil activity in the Sucker state.

STANLEY LEARNED has been promoted to chief engineer for Phillips Petroleum Company, Bartlesville, following the election of A. H. Riney as vice president at the last meeting of stockholders of the company. Learned was assistant chief engineer under Riney.

LESTER G. METCALF, manager of refineries for Union Oil Company for the past eight years, has been appointed director of manufacturing. He succeeded R. E. Haylett, deceased. Metcalf is a graduate of Pomona College and Massachusetts Institute of Technology and first became associated with Union at Oleum in 1917.

J. L. COOK, assistant secretary and assistant treasurer of The Ohio Oil Company, with headquarters in Tulsa, will retire July 1. He has been with the company since May 1, 1897 when he went to work at Toledo, Ohio. In 1912 he became treasurer of the company at Findlay and in 1919 was transferred to the Mid-Kansas Oil & Gas Company at Mineral Wells, Texas, as treasurer. This company was then the Mid-Continent subsidiary of Ohio Oil Company. In 1923 he came to Tulsa as treasurer of the company. Subsequently he was treasurer, assistant secretary and vice president of the Marathon Oil Company, successor to Mid-Kansas Oil & Gas Company. When the

—Blank & Stoller.

SIDNEY S. SMITH

has been appointed general manager of the new gasoline pipe line of Shell Petroleum Corporation from St. Louis to Lima, Ohio. He has been in charge of gas operations of the refining department. Previous to going to St. Louis, Smith was, over a long period, in charge of natural gasoline manufacturing for the Shell Petroleum Corporation with headquarters in Tulsa.

Marathon Oil Company was dissolved he became assistant secretary and assistant treasurer of the parent company with headquarters at Tulsa.

MARVIN LEE, consulting geologist, Wichita, Kansas, is in Cuba to study the Motembo basin area where high gravity naphtha is being produced from 1200 feet. Lee expects to make other geologic investigations while there and hopes to return to the United States in July.

P. D. BOWLEN, president of Texas-Canadian Oil Corporation, Toronto, announced last week that because of present unsettled conditions directors have deemed it wise not to use $250,000 recently made available for further development until such time as the general situation justifies further expansion.

B. GOULSTON, chief chemist for Imperial Oil Company, Ltd., Sarina, Ontario, in a paper delivered last week before the Canadian Chemical Association at Ottawa, declared it is doubtful if it would be economically feasible for producers of Turner Valley, Alberta, to attempt to care for Eastern Canada's oil requirements even though development of the field provides an ample supply of crude. The long distance of Alberta from major markets presented an obstacle to marketing the by-products of petroleum, Goulston said.

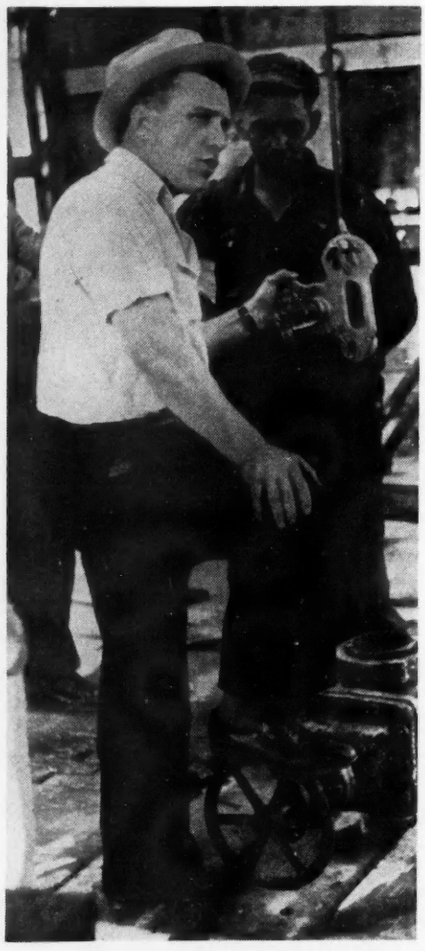
PAUL LYNCH and six associates have organized Cleopatra Oil Company, Inc., to engage in oil exploration on leases acquired in McLean and Daviess counties, Kentucky. Other directors of the firm are F. G. Drake, J. L. Kennard, Erwin S. Kiefer, Charles J. Folz, H. L. Stone and Charles McGlumphy.

J. R. PEMBERTON, oil umpire for Central Committee of California Oil Producers, was host to a large group the evening of June 28 in the museum at Exposition Park, where he showed motion pictures of his recent trip to Central America on an expedition with noted scientists to collect mammals, fossils, reptiles and other geological items of interest.

JOSEPH FLEMING, J. E. Fleming Oil Company, Titusville, Pennsylvania, entertained employes of the company at a picnic last week.

DR. G. S. WHITBY, director of the division of chemistry for the Canadian National Research Council, declared there should be systematic and sustained research in the bituminous tar sands of Alberta when addressing the Canadian Chemical Association convention at Ottawa last week. He described the deposits so extensive that they contained a quantity of bitumen variously estimated from four to ten times the present known oil reserves. "The production from them of various petroleum oils, although perhaps of only limited commercial importance at the moment, with crude oil prices at their present level, is likely to be important in the future that systematic and sustained research should be devoted to the material," he declared.

EDWIN R. CUMMINS, industrial relations manager for Standard Oil Company of Brazil, stopped briefly at his home in Clarksburg, West Virginia, last week enroute from London, England, to New York. He will go to Cuba from New York.



KURT DE COUSSER

Michigan resident geologist of Soconoy Vacuum Oil Company, Inc., recently was elected president of the Michigan Scouts Association. De Cousser is shown here running a sand line depth gauge on his company's farm-out well in Home Township, Montcalm County, completed at 1278 feet for 1,820,000 cubic feet of gas in the Michigan Stray sand, and apparently confirming a new Michigan gas field.

WALLACE B. GRIBBLE, general superintendent of Hope Natural Gas Company, discussed the West Virginia natural gas industry before 300 small-town newspaper editors and publishers attending the National Editorial Association convention in Clarksburg last week.

RUSSELL A. WEINGARTNER, district geologist with Stanolind Oil & Gas Company, Houston, is spending his vacation in Nebraska.

J. A. McNEESE, head of the tax department of Continental Oil Company, Ponca City, Oklahoma, was a Houston visitor last week.

JOHN WATSON, district land man for Sinclair Prairie Oil Company at Shawnee, Oklahoma, has been transferred to Fort Worth as land man for the North and West Central Texas district.

JAMES H. BOTKIN has been appointed comptroller of The Pure Oil Company. Botkin, who has been with Pure Oil for 18 years, succeeds the late Arthur M. Brereton. Botkin's first work with the company was as an auditor in the Columbus, Ohio, offices; in 1926, he became a divisional accountant in the Chicago office; his next appointment was as assistant comptroller in charge of accounting for producing, pipeline, and crude oil purchasing departments. Botkin's headquarters will continue to be in Chicago.

DIED:

FRANK R. COATES, well known oil, public utility and railway executive, died June 26 after a long illness at his home in Avon, New Jersey. Earlier in the week, Coates celebrated his 69th birthday. Coates had been a director of Cities Service Company for 16 years; at the time of his death he was an officer or director in 17 large corporations.

He was born in Philadelphia on June 20, 1869. After obtaining a high school education he entered Lehigh University, at which, after his graduation in 1890, he took a post-graduate course. Coates' first business position was as a roadman in the engineering corps of the Baltimore and Ohio Railroad at Pittsburgh. From this time on he was rapidly promoted.

At the time of his death, Coates was president and a director of Cities Service Oil Co. (Pa.); Community Traction Company; Tampico Texas Petroleum Corp.; The Toledo Edison Company; Interurban Station Company; Mexico-Eastern Oil Company and Penn-York Natural Gas Corp. He was also a vice president and director of Cities Service Power and Light Co.; Empire Gas & Fuel Co.; Indian Territory Illuminating Oil Co.; and The Toledo Light and Power Co.; and a director of Cities Service Company, Arkansas Louisiana Gas Company, Arkansas Natural Gas Corp., Colorado Wyoming Gas Co.; Consolidated Cities Light, Power & Traction Co., and Federal Light & Traction Co.

ROBERT H. McELROY, vice president and director of Standard Oil Company of Indiana, died at Evanston, Illinois, June 25, following an illness of several months. Born in Chicago June 15, 1877, the son of old-time residents who came from the north of Ireland, McElroy attended Chicago schools, and at the age of 14 began work as a messenger boy for a railroad. He rose through various positions to that of chief clerk in 1898. In 1906 he joined Standard Oil Company of Indiana as chief tariff clerk of the traffic department. By 1917, he had gained the position of traffic manager. He was elected a director in 1933, and was given the title of vice president in 1927. Through all the latter years of his life he was high in the management of the company, directing the transportation of products by railway and boat from refineries and storage points, as well as the inbound movement of equipment and supplies.

AMBROSE MERCHANT, 67, independent operator of Houston, died June 28, in a local hospital. He was a native of Concord, Texas, but had resided in Houston for the past 18 years.

THE WEEK'S NEWS SUMMARIZED

Markets

Rising tendencies continued to feature the oil industry's markets the past week. Gasoline prices in tank car lots at refineries showed further improvement in gaining ⅛ to ¼ cents a gallon. Consistent gains in recent weeks are steadily erasing losses sustained last fall and winter. The gasoline situation was aided by withdrawal of over 2,000,000 barrels from storage in the United States during the past 7 days. Kerosene, tractor fuel and light fuel oils also registered gains in prices, as did natural gasoline in the Mid-Continent.

Crude oil postings remained firm, as another million barrels were withdrawn from storage. Recent sharp reductions in stocks have left them nearly 4 percent below the level of a year ago.

Prospects for July are bright, as newly established allowables, while higher than those existing in June, are below the Bureau of Mines estimate of demand. Heavy travel during the month is expected to consume much gasoline and lubricating oil, which should take care of the anticipated larger production of wells. Consequently, production should be well in line with consumption.

Allowables

Crude production control in July will be less strict than in June, it is indicated by new allowables adopted by the leading states. Nevertheless, new allowables are expected to be effective in holding supply in balance with demand, for the combined figures of the six leading states are 143,283 barrels a day below the Bureau of Mines estimate of demand.

Texas fixed an allowance of 1,359,192 barrels daily, which is 199,479 barrels in excess of the June allowable, but still slightly below the Bureau of Mines quota. The state lifted the Saturday shutdown, but continued the Sunday shutdown. However, no provision was made for readjustment of allowables the middle of the month, consequently new completions may swell the state's output over the Bureau's recommendation.

Oklahoma lifted restrictions on its stripper wells in fixing an allowable of 428,000 barrels. This is 23,000 barrels above the June order, but still 89,600 barrels below the July estimated demand of the Bureau of Mines.

New Mexico hiked its allowance 10,600 barrels to 101,600 barrels, which is 10 percent under the indicated demand.

Kansas with an allowable of 165,000 barrels is 5000 barrels over its June allowance, and 7300 barrels under the Bureau of Mines July quota.

California kept the same allowable, 615,000 barrels with 5000 barrels additional allotted to new completions. However, the state has been experiencing difficulty in getting its actual production down to allowable figures.

Louisiana's allowable of 249,725 barrels is 10,875 barrels below the Bureau of Mines quota.

Trust Fight

First of what is expected to be a series of complaints against integrated oil companies was filed with the joint legislative-executive committee investigating monopolies last week. It was charged that major oil firms are engaged in monopolistic practices and are cutting down production and buying large stocks from independent refiners with a view to squeezing out the independent producers.

Meanwhile, it was announced that a ruling would be made July 19 at Madison on motions of 16 major oil companies and 30 of their officers filed after they were declared guilty by a jury of violating the U. S. anti-trust laws. Defendants are being notified to appear with their attorneys.

While these developments were taking place on the oil anti-trust front, another development was the prospect for a third federal grand jury investigation at Madison. A grand jury convening July 12 has called a number of oil men to appear.

Miscellany

California is taking definite steps to curb gas waste in a score of oil fields. An operators' committee has been named to work with the state Oil and Gas Division. The state is expected to take a firm stand to put a stop to future waste of gas. Some meetings have been held in various fields, and others are scheduled.

News Section Index

General News ..... 43 to 51

Allowable Picture 44
Anti-Trust Actions 46
Labor Situation 46
Market Situation 47
Crude Production 49

World Developments ..... 39 and 40

Field Development News ..... 53 to 75

Arkansas 65
California 54
Eastern States 66
Illinois 68
Kansas 55
Louisiana Coast 62
North Louisiana 63
Michigan 70
New Mexico 71
Oklahoma 56
East Texas 59
Texas Gulf Coast 61
North Texas 58
Panhandle Texas 58
Southwest Texas 60
West Texas 57
Rocky Mountains 69
Wildcat Drilling Report 72

Allowable Picture

July allowables of leading states remain under Bureau forecast although increased . . . Texas in abandoning Saturday shutdown to gain sharply

July allowables promise effective crude control

Although crude oil production control will be less strict in July than in June, it will nevertheless be effective in holding supply in balance with demand, and little or no crude is likely to be forced into storage.

This is indicated by the new allowables adopted in the leading producing states for July.

The six leading producing states, accounting for a little over 90 percent of United States production, have combined July allowables 143,283 barrels a day, or 4.7 percent, smaller than the indicated market demand, as forecast by the Bureau of Mines.

Every one of the six leading states adopted a state allowable less than its allocation on the bureau's schedule. Oklahoma will be farthest below the quotas, with a deficiency of 17.4 percent, and New Mexico will have the next strictest allowables by staying 10 percent under the indicated demand.

Kansas, Louisiana, and California will each be around 4 percent below the bureau suggestions, while Texas will be only negligibly under its allocation, having lifted Saturday (but not Sunday) shutdowns.

With one exception, these leading states actually hold production in close conformity with the official allowables. The exception is California, where output lately has been running around 50,000 barrels a day above the limit set by the producers in their voluntary proration program. Actually, therefore, it is to be expected that California in July will produce materially more than the Bureau of Mines estimate of demand.

Texas lifts Saturday closing; allowable up 199,479 barrels

The Texas Railroad Commission has issued a statewide proration order effective July 1 fixing a daily average allowable of 1,359,192 barrels daily, which is 199,479 barrels in excess of the allowable fixed for June.

The figures quoted above are the actual allowable figures with adjustments made for the five Sunday shut downs, which the Commission ordered continued through July. The Saturday shut down was abandoned.

The new allowable is 1108 barrels less than the consumer demand for Texas crude as estimated by the United States Bureau of Mines.

The Commission found that it could afford to abandon the Saturday shut down, but that market conditions were not sufficiently firm to permit abandonment of the shut down order for both days.

"Favorable trends developing in recent weeks," said Commission Chairman Terrell, "continue to reflect improved conditions in the oil industry. Strict production control policies, and reduced refinery runs are doing much to bring the supply of crude oil and gasoline more nearly in line with the demand.

"Crude stocks have been reduced to a point where they are now 3 percent lower than at this time last year, and gasoline stocks declined 1,700,000 barrels during the week ending June 18, 1938.

"We are now entering a period of high gasoline consumption, which

Proration Burdening Financing of Drilling

Assignment of oil payments as a substitute for cash to pay for turn-key well drilling contracts on proved leases provided the financial background for the completion of a large percentage of the wells credited to the active drilling centers in Texas since the first of the year. This method of financing development operations has been adopted by several majors on occasions when their cash position would not support a continuous drilling program.

The imposition of greater proration restrictions, including the five-day production week, is prolonging the amoritization period of a given well to such an extent that banks, supply companies and tubular goods manufacturers are curtailing their support to drilling contractors that have made a specialty of turn-key well contracts. Comparatively few contractors are in position to carry their own oil paper. Unless cash loans, or oil well equipment is available on an extended pay-out plan, they can not continue the practice of drilling and equipping wells for oil assignments.

The practice has been prevalent in the East Texas field since the drilling boom was launched in 1931. Only one major company is known to have financed development of a large portion of its leases on this basis. During the early stages of the drilling boom contractors were paid in deferred oil runs twice or triple the actual cost of drilling and equipping a well. Competition has forced the turn-key price to a level that provides a bonus amounting to one third to one half of the actual cost of a fully-equipped flowing well. Thrifty independents are completing flowing wells in the field for a cash outlay of $7500.

West Texas operators have taken up the oil assignment plan of financing lease development within the past year. This has been utilized for the drilling of scores of wells in several Ector County areas, where contractors have been receiving an oil bonus of about $12,000 above the normal cost of a turn-key well. Several such deals are on record at the Ector County court house, as the lease undergoing development is mortgaged to the contractor until the indebtedness is liquidated from oil production and sales.

Two majors with extensive holdings in West Texas made an unsuccessful attempt in recent weeks to place turn-key contracts on proved leases that are exposed to offset drainage. Both were turned down after bidding contractors failed to obtain the necessary financial support.

Assignment of oil payments to develop leases in the K-M-A field has been employed on a large scale by independents. Erratic performance of the Strawn horizon in this area has created more hazards than normally present in a major area, and the bonus has been stepped up accordingly.

Officials of banks that specialize in oil loans are reported to be discouraging unnecessary drilling because of new wells forcing a cut in the earnings of older wells, thereby delaying the retirement of existing loans.

State Allowables Continue Under Bureau of Mines Recommendations in July

STATE	Bureau of Mines Recommendation	State Allowable Beginning of Month	Excess or Deficiency of State Allowable	Percent Excess or Deficiency
California	642,300	*620,000	— 22,300	— 3.5
Kansas	172,300	165,000	— 7,300	— 4.3
Louisiana	260,600	249,725	— 10,875	— 4.2
New Mexico	112,900	101,600	— 11,300	—10.0
Oklahoma	518,400	428,000	— 90,400	—17.4
Texas	1,360,300	†1,359,192	— 1,108	— 0.09
Total six States	3,066,800	2,923,517	—143,283	— 4.7
Other States	331,300	.....	.....	.....
Total United States	3,398,100	.....	.....	.....

* Recommendation of Central Committee of California Oil Producers.
† Average daily production permitted for 7 day week as a whole; actual daily allowable higher, but fields shut-in on Sundays.

Texas gas order

The Texas Railroad Commission has issued an order effective July 1 fixing an allowable of 651,657,000 cubic feet of sour gas daily for the Panhandle field.

The new allowable for sweet gas for the East Panhandle field was 112,528,000 cubic feet daily.

Texas July Allowables by Districts

DISTRICT		Allowable Effective June 1, 1938	Allowable Effective July 1, 1938	Increase	Decrease
1	Southwest Texas	31,764	33,042	1,278	.....
2	Southwest Texas	60,547	61,726	1,179	.....
3	Gulf Coast	236,727	241,686	4,959	.....
4	Southwest Texas	177,174	183,737	6,561	.....
5	East Central Texas	30,868	30,887	19	.....
6	East Central Texas	78,569	79,438	869	.....
	East Texas	508,897	512,037	314	.....
7	West Central Texas	49,384	48,277	.....	1,107
7-C	West Central Texas	28,720	29,014	294	.....
8	West Texas	211,340	217,508	6,374	.....
9	North Texas	81,769	81,769	.....	.....
10	Panhandle	82,965	82,965	.....	.....
		1,578,726	1,602,086	23,360	1,107

should further reduce excessive stocks and contribute to additional improvement in the oil industry's position during the next few months. There are also important signs that business recovery may be taking place, and should this be true the trend of a decreasing domestic gasoline consumption will probably be reversed.

"These factors point to the possibility of an increase in oil production, so that there is no longer a necessity for maintaining both the Saturday and Sunday shutdowns. Gasoline stocks, however, are still approximately 10 percent higher, and fuel oil stocks are 38 percent higher than a year ago, and the favorable conditions which are just now developing have not yet materialized into accomplished facts.

"The Commission has given a great deal of thought to the possibility of lifting both Saturday and Sunday shutdowns, but while the trends are in the right direction we feel, after considering most carefully and waiting as long as we could, that they have not yet developed the anticipated momentum which would safely warrant the lifting of both the Saturday and Sunday shutdowns at this time.

"The Sunday shutdown has therefore been retained and the Texas allowable, with the Sunday shutdown, is 1,359,460 barrels daily, which is under the Bureau of Mines recommended level of production for the month of July."

Increases were ordered for all districts except the West Central Texas area, which lost 1107 barrels. The increases provided, however, were in most instances the normal gains resulting from completion of new wells.

The Commission made no provision for alteration of the schedules at midmonth to bring field allowables within the top allowables to become effective July 1. This plan was followed last month and was found to have one serious defect; that is, it caused drastic cuts in the per well allowable where the number of wells in the field was small and had virtually no effect in those fields where the number of wells was large. The result was that drilling was stifled in any new fields because of the extremely low allowable, and the older flush fields were not affected materially.

Oklahoma allowable hike lifts stripper restriction

Restriction on output of stripper well fields in Oklahoma will be lifted for July with the state's allowable fixed at 428,000 barrels daily, 23,000 above the order in effect the latter part of June and 89,600 barrels below the July estimate of Oklahoma demand by the United States Bureau of Mines.

The order provides for 76,100 barrels daily from the Class A, Wilcox zone, at Oklahoma City, 99,353 barrels daily from Class B pools, chiefly the Greater Seminole area; 42,824 barrels daily from Class C pools, 11,085 barrels daily from Class D, wildcat, pools; 40,918 barrels daily from the unclassified, prorated-by-agreement, pools; and 157,702 barrels daily from the stripper well pools.

Oklahoma fast slipping into stripper-well class

After a study of a month, the Oklahoma Corporation Commission issued a report June 27 from which the conclusions justified are that the state has kept within the estimates of the United States Bureau of Mines for the past three years and that its production is slipping into the stripper-well class.

Seven Barrel Average

Per-well output of Oklahoma is now down to 7 barrels. Out of its 60,079 producing wells, 55,000 make 2 barrels daily each. The 5,079 prorated wells have average daily output of 53 barrels each. Oklahoma City, only Class A pool in the state, has the highest per-well allowable—133 barrels each for its 547 Wilcox-zone wells, 127 barrels daily for each of its 33 Dolomite wells and 172 barrels daily for each of its 11 Pawhuska-zone wells.

Compared with the 7-barrel average for 1938, the state in 1937 had 55,334 wells and average per-well output of 11.1 barrels.

Shifting markets have brought reduction in allowable, which was 405,000 barrels daily for June. In July, 1937, the Bureau of Mines set the market for Oklahoma crude oil at 629,700 barrels daily. Its estimate for July this year is 508,300 barrels daily.

Average demand for Oklahoma oil in 1937, as estimated by the federal agency, was 609,667 barrels daily and average production for that year was 607,743 barrels. For the first four months of 1938 Oklahoma production was 509,907 barrels daily while market demand as estimated by the bureau was 552,625 barrels daily.

One object of the study by the commission was to determine what had happened to the market for Oklahoma crude oil. Against an estimate of 629,700 barrels daily in July, 1937, the demand for July, 1938, is 508,300, loss of 121,400 barrels.

An explanation popularly given for the drop in demand for Oklahoma crude is the rise of production in Illinois. But the difference between July, 1937, and July, 1938, in Oklahoma is more than the output of Illinois, while there has been a drop in Kansas, where also the Illinois situation is charged with requiring curtailment of output.

When the estimates of the Bureau of Mines for 1937 are checked against allowables in Oklahoma for 1938, the discrepancy becomes more pronounced. The June allowable for Oklahoma was 405,000 barrels. Buyers simply will not take as much oil as indicated by the federal estimate. For July indications are that the actual market will dictate an allowable close to the 405,000 barrels established for June. In that case actual market will be $225,000 barrels a day less in 1938 than in 1937, since the full output of July, 1937, was sold and it frequently went higher than the allowable.

Kansas oil allowable is fixed at 165,000 barrels

Daily allowable for Kansas was fixed at 165,000 barrels June 28 by the Kansas Corporation Commission. The figure is 7300 barrels below the estimate of the United States Bureau of Mines and 5000 higher than the revised allowable for the latter part of June.

In fixing the allowable the commission expressed the opinion that there would be no need for pipe line proration, a condition that brought downward revision of the June order.

Three purchasing concerns, however, testified the day previous that they could not run as much oil as indicated by the federal estimate. Phillips Petroleum Company, The Texas Company and Standard Oil Company of Indiana offered testimony in behalf of a lower allowable. Continental Oil Company nominated a July requirement 1312 barrels higher than its June demand.

E. R. Sloan, commission chairman, said:

"This allowable is based on nominations of purchasers, which include some of the special allowables requested to meet demands of certain pools. Under this allowable there is no reason for pipe line proration or any discriminatory taking of oil in pools."

The commission set a general hearing for July 15 when the whole question of allowables in Kansas will be given consideration. This will be the first hearing of this nature since the method was changed last year to provide that new wells take potential and go on a decline curve for determining future potential.

California July allowable same as June figure

California's July allowable will remain at 615,000 barrels daily, plus an allowance of 5000 barrels daily for new wells to be completed. This is the same allowable as approved for June by the Central Committee of California Oil Producers.

All producers were urged by Lawrence Vander Leck, chairman, to do their utmost to bring their respective production down to the desired level.

Anti-Trust Actions

Nebraska distributor files complaint with monopoly investigators . . . Another Madison grand jury to study oil . . . To rule soon on trust suit motions

First oil complaint filed with monopoly investigators

Independent oil interests will take their fight against the integrated companies to the joint legislative-executive committee investigating monopoly, it was learned at Washington last week.

First of what is expected to be a series of complaints was filed with Assistant Attorney General Thurman Arnold, representative of the Department of Justice on the committee, on behalf of L. L. Coryell & Son, Lincoln, Nebraska, an independent distributor operating in 14 states.

The complaint, submitted by George M. Tunison, attorney, with a request for an investigation of major oil company practices, charged that the major producers are engaged in monopolistic practices and are cutting down production and buying large stocks from independent refiners with a view to squeezing out independent producers by controlling output.

May Legislate

Back of the complaints which are coming in to the committee from independents—not only from oil men but from operators in a number of industries—is the belief that while Department of Justice prosecutions may put an end—permanently or temporarily—to monopolistic practices, the Administration investigation will result in legislation definitely outlawing such expedients.

In at least two industries—oil and motion pictures—the hope is that the new legislation will divorce retailing from production and distribution. The set-up in the two industries is identical, with some companies engaged in production, distribution and retailing, while others are independents in the first or third categories, the basic complaint being that the marketers (exhibitors, in the film industry) are at the mercy of the integrated companies with their own outlets.

Suggestions that large corporations engaged in a multitude of activities, as in the oil and film industries, should be broken up into smaller companies have already been made during recent conversations between representatives of "big business" and Administration economists.

Discussions which are being held in anticipation of the inauguration of the monopoly investigation, between Prentiss L. Coonley, aide to the business advisory council of the Department of Commerce, and a number of industrial executives, Mr. Coonley disclosed, have developed an agreement that size of a concern is not always synonymous with efficiency and that consolidated businesses often do not earn as much money as the different units earned before consolidation.

The subject of dissolution of such organizations, it is expected, will be thoroughly explored during the studies of the joint committee, which will begin hearings probably in September. Prior to those hearings, however, the Administration agencies represented on the committee—the Justice, Treasury, Commerce and Labor Departments, the Federal Trade Commission and Securities and Exchange Commission—will make studies of various phases of monopoly as a basis for the questioning of witnesses to be called.

Third Madison trust trial now looming

The third Madison federal grand jury investigation of the oil industry loomed last week when department of justice officials announced that 30 witnesses had been subpoenaed to appear before a session of the investigating body when it convenes July 12 in the Wisconsin city.

While court officials declined to reveal names of any of those summoned it was reliably reported that at least one major oil company official was among the 30. In the right of practice followed in the previous inquiries many of those summoned are probably complaining witnesses and oil company employes.

The nature of the new investigation was not disclosed, except that the grand jury would be given "evidence dealing with the general midwestern oil situation."

Madison trust suit ruling set for July 19

Federal Judge Patrick T. Stone announced last week he would rule July 19 on motions of 16 major oil companies and 30 of their officers offered at the conclusion of the first oil anti-trust case at Madison, Wisconsin, last January. The motions ask freedom for the defendants, who were found guilty by a jury after a four-month trial, or that they be granted a new trial.

Defendants are being notified to be present with their attorneys, and it is believed that the court will pass sentence during the hearing in the event the motions are denied. An appeal from the lower court decision has been indicated by defense attorneys in the event

[*Continued on page 51*]

Labor Situation

NRLB hearing of Eastern Petroleum case and filing of charges on Pure Oil are developments of week

The domestic labor situation remained comparatively quiet the past week. With the exception of a NRLB hearing conducted in Houston and a charge filed against one of the major oil companies in Muskogee, Oklahoma, no important developments took place.

Eastern States Petroleum NRLB hearing ends

Evidence in the hearing by the National Labor Relations Board into charges of company domination of an independent union brought by the local chapter of the Oil Workers International Union against Eastern States Petroleum Company, Houston, was submitted to the trial examiner for review before filing a report with the NRLB in Washington. The testimony required only one day, covering statements of witnesses from both sides.

Eastern States Petroleum Company was accused of fostering the Eastern States Employes Federation at the company refinery on the Houston ship channel. Charges were filed by the union last October and the hearing was set originally for May 2 but was postponed several times to allow investigations and the preparation of stipulations.

Pure Oil Faces Charges

Edwin A. Elliott, regional director of the National Labor Relations Board, last week issued a complaint against The Pure Oil Company, charging it with unfair labor practices in the operation of a refinery at Muskogee, Oklahoma, a center of the strike activities for the last month.

The complaint was issued on a charge brought by the union, stating that the company discharged 46 men for joining and aiding the union, and that 8 of them were dismissed because they testified in a former NRLB hearing in Muskogee against the company. It is also charged that on one occasion the company told union members to cease their efforts in behalf of the union and in the conduct of the strike.

Elliott set a hearing on the complaint for July 18.

Oil Workers Laid Off

The prevailing low market price for crude oil is forcing the lay-off of recently employed workers of South Penn Oil Company, it was announced last week at the company's headquarters in Pittsburgh. Men who have been with the company for less than one year will be affected.

Market Situation

Continued advance in gasoline prices leads other refined products to higher levels . . . Improved demand a factor in the sharp reduction of stocks

Markets strong as prices show additional gains

In line with the widening evidence of business improvement, the markets of the oil industry continue to display strength and rising tendencies.

Crude oil postings remain firm, with production still under strict control, effective curtailment in prospect for July, and crude stocks exceptionally low, following sharp reductions of recent weeks.

The latest weekly statistics on crude storage indicated a further withdrawal of about a million barrels from storage, which left the inventories nearly 4 percent lower than a year ago.

Gasoline Market Strong

The gasoline market has further extended the steady improvement of recent weeks, tank car prices at the refineries having gained from ⅛ to ¼ cent a gallon more within the past week. These consistent gains are steadily erasing the losses sustained last fall and winter.

The gasoline situation was aided materially last week by the sharp reduction of over 2,000,000 barrels in United States stocks. Substantial withdrawals had occurred also in each of several preceding weeks.

In addition, the gasoline market was stimulated last week by the extraordinary demand which arose in anticipation of heavy motoring during the July 4 holiday period, as much travel was promised because of Independence Day falling on Monday.

Other Prices Also Up

Market strength was not confined, however, to gasoline, having extended also to kerosene, tractor fuel, and light fuel oils. The prices for kerosene at Mid-Continent refineries were in some instances ⅛ cent a gallon higher than a week before.

The natural gasoline market also exhibited strength, and quotations were marked up ⅛ cent a gallon by sellers in the Mid-Continent.

Statistical situation improves further

The latest weekly figures on the petroleum industry revealed further material improvement in the statistical situation.

Current operations were shown to be continuing at quite moderate proportions, and the strict regulation of wells and refineries was bringing about additional betterment of the inventory position.

Both crude oil production and refinery runs have remained at relatively low levels; plant output of finished products has been sufficiently small to permit further sharp reduction of gasoline stocks; and crude production has been low enough to necessitate taking some more crude out of storage, which now is exceptionally small.

Crude Production Down

The United States crude oil production in the week ended June 25 averaged 3,083,900 barrels daily, which was about 53,000 barrels a day less than in the previous week and 12.6 percent less than the output in the corresponding week last year.

Crude oil runs to refinery stills in the week of June 25 averaged 3,025,000 barrels daily, having been reduced 55,000 barrels from the previous week's rate. The new level of operations was 6.5 percent below that in the comparable week last year.

Gasoline Situation

Most conspicuous among the statistical changes in the week ended June 25, however, was the sharp decrease of over 2,000,000 barrels in gasoline stocks. Those inventories came down to 82,412,000 barrels, and then were only 9.4 percent larger than one year before.

While the gasoline stocks still are too high in relation to market demand, which is running only about the same as a year ago, they have been brought down to considerably more comfortable proportions in recent weeks.

Fuel oil stocks, however, remain out of line, having increased about 800,000 barrels more in the week of June 25. At that time they totaled 137,801,000 barrels, which was 37.2 percent more than on the same date last year. Nevertheless, the fuel oil stocks normally increased at this season, and to that extent, the gain was justified.

Crude oil stocks in the United States came down over 1,000,000 barrels more in the week ended June 18, latest period for which figures are available, declining to 295,931,000 barrels. The crude storage was reduced 11,000,000 barrels in the short period from May 1 to June 18. The stocks now are 3.7 percent lower than at this time last year, and are almost down to the level of early 1937, when inventories were the smallest since shortly after the World War. Obviously, the crude storage situation is unusually favorable.

Further increases in prices are recorded

Prices in the industry have continued firm to strong, having held unchanged in some instances and moved upward in others.

The crude postings are generally steady, and prices of various products, including gasoline, are better than a week ago.

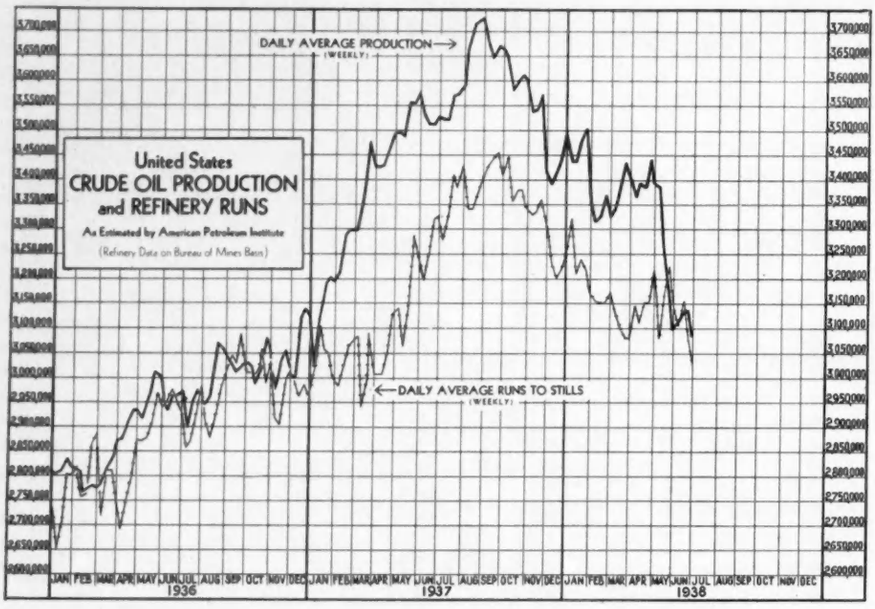
The gasoline tank car prices at refineries have been consistently improving in each of several recent weeks, and the past week's gains amounted to ⅛ to ¼ cent a gallon and affected all grades

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
May 29, 1937	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 29	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 26	3,322,800	3,170,000	305,167,000	90,719,000	120,958,000
March 19	3,322,550	3,080,000	306,380,000	*93,192,000	122,067,000
March 26	3,405,600	3,080,000	307,557,000	92,858,000	122,979,000
April 30	3,396,150	3,215,000	307,147,000	91,339,000	128,270,000
May 28	3,098,650	3,150,000	301,583,000	87,946,000	134,315,000
June 4	3,107,950	3,105,000	298,266,000	87,767,000	134,632,000
June 11	3,131,500	3,155,000	297,197,000	86,149,000	136,097,000
June 18	3,137,300	3,080,000	295,931,000	84,476,000	137,007,000
June 25, 1938	3,083,900	3,025,000	.....	82,412,000	137,801,000
June 26, 1937	3,529,000	3,235,000	†307,465,000	75,427,000	100,395,000
Change in past year	—12.6%	—6.5%	—3.7%	+9.1%	+37.2%

* All time peak. † Stocks, June 19, 1937.



and all districts of the Mid-Continent.

Kerosene prices also were marked up ⅛ cent a gallon in some instances, and similar increases were made in the quotations for natural gasoline and for some of the lighter fuel oils and tractor fuel.

Standard Oil Company of New Jersey, effective June 28, advanced tank car prices for regular and 65 octane gasoline ¼ cent a gallon in New York harbor and from 3/10 to ½ cent in northern New York and Connecticut. Those advances followed similar increases on the same date by Socony-Vacuum Oil Company.

Effective June 29, Standard Oil Company of Indiana restored to normal all reduced tank wagon prices to consumers on Stanolind (third grade) gasoline, Standard tractor fuel, and Perfection kerosene in Illinois, Indiana, Iowa, Minnesota, Missouri, North Dakota, South Dakota, and Wisconsin.

Natural Gasoline

Natural gasoline, grade 26-70, was priced generally in the Mid-Continent markets f.o.b. refineries at 2¼ cents a gallon, and sales were reported at the same price f.o.b. Breckenridge, Texas.

Gasoline at Refineries

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below, 4¾ to 5 cents a gallon; 63 to 66 octane, 5 to 5⅛ cents; 67 to 69 octane, 5¼ to 5½ cents; 70 to 72 octane, 5½ to 5¾ cents.

Corresponding prices in the Chicago markets were: 4¾ to 5 cents, 4⅞ to 5⅛ cents, 5¼ to 5⅜ cents, and 5⅜ to 5⅝ cents.

In East Texas the most common gasoline, 60-62, 400 end point, was priced generally from 4⅝ to 4¾ cents a gallon.

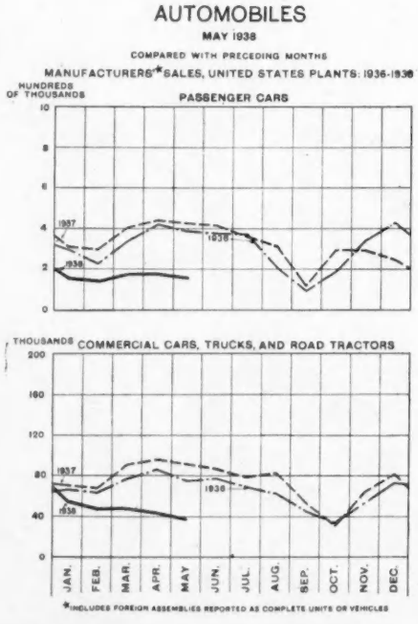
Kerosene prices f.o.b. Oklahoma refineries ranged from 4¼ to 4⅜ cents a gallon for the 41-43 water white grade, and from 4½ to 4⅝ cents for the 43-44 water white grade; and corresponding prices in the Chicago market were 4 to 4¼ cents and 4⅛ to 4½ cents.

Fuel Oil

Fuel oil prices were generally the same as in the previous week. In the Chicago market range oil was priced from 3¾ to 3⅞ cents a gallon. The No. 1 white oil was priced from 3⅝ to 3⅞ cents and No. 1 straw from 3⅜ to 3¾ cents. No. 2 straw was 3¼ to 3⅝ cents. No. 3 oil was 3 to 3¼ cents. No. 4 was $1.05 to $1.10 a barrel to domestic consumers and 90 cents to $1.05 to industrial buyers. No. 5 oils were 65 to 75 cents for domestic and 55 to 65 cents for industrial sales. The No. 6 oil was quoted to the usual industrial customers at 35 to 50 cents a barrel.

Kentucky cut met

To conform with prices posted a week ago by Ohio Oil Company and Producers Pipe Line Company in western Kentucky fields, Fordsville Gathering Lines have lowered prices 10 cents a barrel to $1.30 in older fields and to $1.25 in the new Birk City field of Henderson County.



Although prospects have become better during the current business optimism, factory sales of automobiles in the United States so far this year have been disappointing. In May the sales consisted of 192,068 automobiles, trucks, and tractors, compared with 516,919 in May, 1937, and 460,512 in May, 1936. For the first five months of the year, sales consisted of 1,029,207 vehicles in 1938, compared with 2,290,986 in 1937 and 2,035,592 in 1936.

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields are shown on pages 50 and 51. This schedule appears only in the first issue of each month.

Price cut in Oklahoma heavy-crude field

Notices were sent last week by Cosco Oil Company, refiner at Wynnewood, Oklahoma, to producers in the Robberson field, Garvin County, Oklahoma, announcing a 25-cent reduction of its price for crude in that field, from 98 to 73 cents a barrel, effective June 24.

The company has been buying about 1200 barrels daily of the crude, which is 22-23 gravity and which is valuable chiefly for road oil and asphalt manufacture, in which the Cosco refinery engages.

The new price puts this crude on a parity with Talco, Texas, asphalt crude, a competing oil.

Magnolia Petroleum Company is the largest producer at Robberson.

Indiana Standard to buy crude direct

Liquidation of the Stanolind Crude Oil Purchasing Company became effective June 30 when Standard Oil Company (Indiana) took over all assets of its wholly-owned subsidiary and began purchasing oil direct in the fields served by Stanolind Pipe Line Company, with the exception of Texas, which is still served by the newly-organized Stanolind Oil Purchasing Company. The change was made to simplify and consolidate crude oil purchases.

The crude oil purchasing department will have headquarters in Tulsa. It will be headed by A. W. Peake, vice president of Standard Oil Company (Indiana) at Chicago, with Ralph O. Dietler, Tulsa, as general manager, and A. L. Carlson, Tulsa, as auditor.

Huge shipment of California oil to Japan

Movement was started late last week from Los Angeles Harbor of a million-barrel oil delivery recently signed with Richfield Oil Corporation for the shipment of oil to the Japanese Navy. This tremendous order was disclosed when it was learned that 14 commercial tankers have been nominated to load.

The movement was started from San Pedro by the giant whaling factory-tanker Nisshin Maru 11, which loaded 143,000

barrels of fuel oil at the Richfield terminals for the Yokosuke naval base. She was followed to the same docks by the express motor-tanker Toa Maru which was loaded with 90,000 barrels of crude.

The Richfield contract with the Japanese navy for delivery within the next six months, is in addition to the regular movement of California crude to Japan for both commercial and naval account, which now is averaging approximately 1,300,000 barrels per month.

Negotiate for sale of Sligo crude

Triangle Drilling Company, which recently acquired Atlas Pipeline Corporation's line from the Sligo field, Bossier Parish, to Shreveport, the only outlet for this field, is negotiating with Standard Oil Company of Louisiana for sale of this oil, to be delivered at Standard's pumping station at Moore's Station southwest of Shreveport.

Texas Pipeline Company is moving American Liberty Oil Company's crude from the Rodessa field to Port Arthur, Texas, where it is to be exported.

Magnolia Pipeline Company is laying a line from its Cotton Valley gathering system to Stanolind Oil and Gas Company's Pardee 1, Section 36-21n-10w, recently completed as Cotton Valley's first real lower Marine oil well, it being 1¾ miles southeast of former production.

Crude Production

Oklahoma again leads decline which brings United States total crude output to 3,037,025 barrels day.

THE last week in June saw another sharp dip in United States crude oil production, the daily output having averaged 3,037,025 barrels daily, or 36,225 barrels a day less than in the previous week. This further reduction brought the daily output 296,275 barrels daily below the Bureau of Mines estimate for the month.

The decrease occurred principally in Oklahoma and Kansas, followed by Louisiana and California. Texas was the only major producing state to show a gain in production.

Oklahoma showed a drop of 31,875 barrels daily, averaging 376,575 barrels a day, which was 131,725 barrels less than the federal allocation and 28,426 barrels less than the state allowable.

Kansas had a decline of 9825 barrels daily, having averaged 143,150 barrels a day. That was 29,150 barrels a day less than the Bureau of Mines recommendation and 16,850 barrels less than the allowable prescribed by the state.

Louisiana output decreased 1875 barrels to 258,700 barrels a day, which was 8700 barrels more than the estimated demand and 8225 barrels more than the state allowable.

California production was down 900 barrels at 663,000 daily, 13.000 barrels a day more than the indicated demand and 43,000 barrels more than the recommendation of the Central Committee of California Oil Producers.

Texas showed an increase of 1600 barrels, averaging 1,183,900 barrels daily, which was 145,400 barrels less than the Bureau of Mines recommendation and 24,187 barrels more than the state allowable.

Building Otis gas plant

Wichita.—The third gas treating plant for the field at Otis, Kansas, is being constructed by J. F. Pritchard & Company, Kansas City, for Producers Gas Company, with completion scheduled for July 15. Cost of the project is $75,000.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in June)	State Allowable in June	BARRELS DAILY FOR WEEK ENDED July 2	BARRELS DAILY FOR WEEK ENDED June 25
TEXAS—				
Texas Panhandle			63,400	60,100
North Texas			68,700	69,500
West Central Texas			27,500	27,800
West Texas			180,100	179,300
East Central Texas			88,100	89,600
East Texas Field			363,700	362,800
South Texas			204,150	206,500
Texas Gulf Coast			188,250	186,700
Total Texas	1,329,300	1,159,713†	1,183,900	1,182,300
CALIFORNIA—				
Long Beach			59,200	59,000
Santa Fe Springs			34,000	33,100
Huntington Beach			33,000	33,600
Dominguez			24,300	27,200
Ventura Avenue			36,300	34,500
Midway-Sunset			59,000	54,200
Kettleman Hills			66,900	67,200
Wilmington			92,100	90,800
Others			258,200	264,300
Total California	650,000	620,000*	663,000	663,900
OKLAHOMA—				
Oklahoma City			73,450	85,225
Seminole Area			92,050	85,325
Fitts			39,175	39,800
Others			171,900	198,100
Total Oklahoma	508,300	405,000	376,575	408,450
LOUISIANA—				
North Louisiana			79,400	79,350
South Louisiana			179,300	181,200
Total Louisiana	250,000	250,475	258,700	260,575

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in June)	State Allowable in June	BARRELS DAILY FOR WEEK ENDED July 2	BARRELS DAILY FOR WEEK ENDED June 25
KANSAS—				
Burrton-Haven			10,200	10,250
Russell County			9,575	11,525
Silica			22,100	26,225
Others			101,275	104,975
Total Kansas	172,300	160,000	143,150	152,975
NEW MEXICO	108,300	91,000	91,100	90,200
MICHIGAN	54,000		54,400	55,300
ARKANSAS	48,300		51,100	46,650
MOUNTAIN STATES—				
Wyoming	49,700		57,500	53,800
Montana	12,700		13,800	14,250
Colorado	5,000		3,900	3,750
Total Mountain States	67,400		75,200	71,800
EASTERN STATES—				
Pennsylvania Grade			74,950	75,800
Southern Illinois (New Pools)			28,700	28,300
Illinois-Indiana (Old Pools)			12,400	12,950
Others, Eastern			23,850	24,050
Total Eastern States	145,400		139,900	141,100
Total United States	3,333,300		3,037,025	3,073,250

† Daily average, considering Saturday and Sunday shut-downs.

* Recommendation of Central Committee of California Oil Producers.

CRUDE OIL PRICE SCHEDULES

(Figures Revised to July 1, 1938)

MID-CONTINENT GRAVITY SCALE PRICES (Posted January 28, 1937)

(Some fields of Mid-Continent have flat price postings, and are shown separately)

Gravity	Okla.-Kans.	North La.-Ark.	Rodessa, La.-Tex.	North & W. Cent Tex.	East Cent. Tex.	Gray Co. Tex.	Carson Hutchinson Co. Tex.	[1]Conroe Tex. Type	West Tex.-N. Mex.	[2]Gulf Coast (Tex.-La.)	[3]Some La. Gulf Areas	[4]Anahuac, Tex. Type	[5]Refugio Tex. Type	[6]Mirando Tex. Type
17–17.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	*$0.90	.....	.....	.....
18–18.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.92	.....	.....	.....
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.94	.....	.....	.....
20–20.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	*$0.95	.96	.....	*$1.01	*$0.96
21–21.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.98	.98	.....	1.03	.98
22–22.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.01	1.01	.....	1.05	1.00
23–23.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.04	1.04	.....	1.07	1.02
24–24.9	*$0.98	*$0.90	*$0.93	*$0.88	.....	.....	.....	.....	.....	1.07	1.07	.....	1.09	1.04
25–25.9	1.00	.92	.95	.90	.....	.....	.....	.....	*$0.78	1.10	1.10	.....	1.11	1.06
26–26.9	1.02	.94	.97	.92	.....	.....	.....	.....	.80	1.13	1.13	.....	1.13	1.08
27–27.9	1.04	.96	.99	.94	.....	.....	.....	.....	.82	1.15	1.15	.....	1.15	1.10
28–28.9	1.06	.98	1.01	.96	*$1.03	.....	.....	*$1.20	.84	1.17	1.17	.....	1.17	1.12
29–29.9	1.08	1.00	1.03	.98	1.05	.....	.....	1.22	.86	1.19	1.19	.....	1.19	1.14
30–30.9	1.10	1.02	1.05	1.00	1.07	.....	.....	1.24	.88	1.21	1.21	$1.16	1.21	1.16
31–31.9	1.12	1.04	1.07	1.02	1.09	.....	.....	1.26	.90	1.23	1.23	1.18	1.23	1.18
32–32.9	1.14	1.06	1.09	1.04	1.11	.....	.....	1.28	.92	1.25	1.25	1.20	1.25	1.20
33–33.9	1.16	1.08	1.11	1.06	1.13	.....	.....	1.30	.94	1.27	1.27	1.22	1.27	1.22
34–34.9	1.18	1.10	1.13	1.08	1.15	*$0.96	*$0.91	1.32	.96	1.29	†1.29	1.24	1.29	1.24
35–35.9	1.20	1.12	1.15	1.10	1.17	.98	.93	1.34	.98	1.31	.	1.26	1.31	1.26
36–36.9	1.22	1.14	1.17	1.12	1.19	1.00	.95	1.36	1.00	1.33	..	1.28	1.33	1.28
37–37.9	1.24	1.16	1.19	1.14	1.21	1.02	.97	1.38	1.02	1.35	..	1.30	1.35	1.30
38–38.9	1.26	1.18	1.21	1.16	1.23	1.04	.99	1.40	1.04	1.37	..	1.32	1.37	1.32
39–39.9	1.28	1.20	1.23	1.18	1.25	1.06	1.01	1.42	1.06	1.39	..	1.34	1.39	1.34
40 & Above	1.30	1.22	1.25	1.20	1.27	1.08	1.03	1.44	1.08	1.41	..	1.36	1.41	1.36

* Minimum price and applies alsto to purchases of lower gravity.

[1] Conroe, Tomball, Satsuma, Raccooon Bend Deep fields.

[2] Upper Texas Gulf Coast, including Goose Creek, Spindle Top, etc., and some fields of Louisiana Gulf Coast, including Black Bayou, White Castle, Vinton, Hackberry, etc., except that top price for those Louisiana fields is $1.29 for 34 gravity and above.

[3] Choctaw, Darrow, Lockport, Iowa (Magnolia posting), Cameron Meadows, etc.

[4] Anahuac, Dickinson, Flour Bluff, Turtle Bay.

[5] Lower Texas Gulf Coast, including Refugio, Saxet, etc. Posted 7-6-37.

[6] Duval, Jim Hogg, Webb and Zapata Counties; Heyser, Placedo fields. Posted 7-6-37.

† Maximum price and applies also to purchases of higher gravity.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Smackover	$0.90	1–28–37
Louisiana:		
Garden Island	1.37	1–28–37
Lafitte	1.24	1–28–37
Texas:		
East Texas	1.35	5–22–37
Talco	.73	1–28–37
Livingston, Cleveland	1.27	1–28–37
Hardin	1.15	1–28–37
Van	1.10	1–28–37
Pettus	1.37	1–28–37
Pecos County	.91	1–28–37
Pecos Shallow	.81	1–28–37
Luling	1.00	1–28–37
Lytton Springs	1.12	1–28–37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09	1–28–37

Michigan Prices

Central Michigan	$1.27	7–24–37

Middle West Prices

Lima, Ohio	$1.00	11–20–37
Illinois	1.35	1–28–37
Princeton	1.35	1–28–37
Western Kentucky	1.30	6–22–38

Rocky Mountain States Prices

	Flat Price	Date Posted
Colorado:		
Ft. Collins and Wellington, Light	$1.01	1–28–37
Ft. Collins and Wellington, Heavy	1.25	1–28–37
Cannon City and Florence	1.10	1–28–37
Iles, Light	1.18	1–28–37
Iles, Heavy	1.12	1–28–37
Montana:		
Cat Creek	1.30	1– 1–38
Cut Bank	1.35	6– 3–36
Pondera	1.05	9–29–33
Sunburst	.90	11–16–37
***New Mexico:**		
Hogback	1.33	1–28–37
Wyoming:		
Big Muddy	1.18	1–28–37
Elk Basin	1.30	1–28–37
Frannie, Light	.65	5– 1–38
Frannie, Heavy	.62	11– 4–36
Graybull-Torchlight	1.30	1–28–37
Grass Creek, Light	1.30	1–28–37
Grass Creek, Heavy	.50	5– 1–38
Hamilton Dome	.45	5– 1–38
Lance Creek	.97	1–28–37
Osage	1.30	1– 1–37
Rock Creek	1.20½	1–28–37
Salt Creek, Tensleep	.70	1– 6–38

* Also see Mid-Continent Gravity-Scale Schedule above.

Pennsylvania Prices

Bradford-Allegheny	$1.80	6–13–38
National Transit Lines	1.80	6 13–38
Sw. Pa. Pipe Line	1.46	6 13 38
Eureka Pipe Line	1.40	6 13 38
Buckeye Pipe Line	1.30	6 13 38
Corning Grade	1.17	6 16 38

Prices Outside United States

Canada:		
Petrolia	$2.10	9– 9–33
Oil Springs	2.17	9– 9–33
Mexico:		
F.O.B. Tampico; net; U. S. Currency, buyer pays tax	.85	Feb., 1938

Major Price Changes

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19,1933	Up 10	Up 19	
June 26, 1933	Up 10		Up 9-12
July 6, 1933	Up 13	Up 10	
July 17, 1933	Up 15		
July 28, 1933	Up 15		
August 11, 1933	Up 10		
August 24, 1933		Up 10	
August 30, 1933	Up 15		
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933		Up 15	
May 1, 1934	Up 10		
November 6, 1934	Cut 25		
December 6, 1934	Cut 25		
January 4, 1935	Up 15		
February 4, 1935	Up 15		
May 16, 1935	Cut 15		
June 26, 1935	Cut 15		
July 16, 1935	Cut 10		
August 29, 1935			Cut *1
September 6, 1935	Up 5		
October 29, 1935	Up 15		
November 1, 1935			Up *28
November 18, 1935	Up 15		
December 6, 1935			Up *9
January 9, 1936		Up 10	
January 13, 1936	Up 15		
February 26, 1936			Up 15
December 28, 1936	Up 12		
January 28, 1937		Up 12	
February 24, 1937	Up 10		
June 7, 1937	Up 15		
September 1, 1937	Cut 22		
October 12, 1937	Cut 25		
December 1, 1937	Cut 15		
March 7, 1938	Cut 17		
June 13, 1938	Cut 25		

* Signal Hill 26 gravity. † Seal Beach 26 gravity.

Crude Production Taxes

Oklahoma—Five percent of gross value less royalty interest.

Texas—2¾ cents or 2¾ percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and 3/8 of 1c per barrel.

New Mexico—Severance tax of 2 percent on oil and gas.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.

California to try to stop gas wastage

Definite steps toward curbing excessive production of gas from scores of oil fields in California were taken last week by the State Division of Oil & Gas, with the announcement that operators of the Dominguez field met July 28, and agreed to work out a plan whereby future wastage would be prevented.

Howard Pyle was named chairman of the operators' committee to work with the state officials to bring a better ratio in a number of the fields that have been exceeding their gas quota, and a series of meetings were arranged to endeavor to bring this about at once, which indicates, experts say, that the state expects to take a firm stand to put a stop to future waste of gas that is needed to bring oil to the surface.

At 10 a.m. last Wednesday operators from the north Belridge field met with E. Huguenin of the State Oil and Gas Division to discuss their problems. An hour later at 11 a.m. Montebello field oil producers held a similar discussion; while at 2 p.m. Kettleman North Dome producers presented their problems, and at 3 p.m., many operators from the Wilmington field, which is said to be the worst offender insofar as gas wastage is concerned, held an informal discussion to bring about an immediate reduction in the production of gas.

This group of meetings is the outgrowth of a mass meeting called last week by Governor Merriam for the purpose of bringing the gas wastage situation to a head and to impress upon all operators in general that a cut in this waste must be forthcoming or more radical steps may be taken to bring about enforcement of the state's gas act.

Jersey Standard plans big expansion program

Standard Oil Company of New Jersey indicated last week to the Securities and Exchange Commission at Washington that it had under study a $175,000,000 expansion program for 1938. (This would be about the same amount of capital expenditures as in 1937.) The company spent $39,000,000 in the first three months of this year, it was stated.

The company has listed with the federal body the underwriters of an $85,000,000 program of borrowing through which part of the 1938 spending funds will be raised.

Details of the 1938 plans were revealed, indicating expectations of using $90,000,000 for acquiring and developing crude oil reserves, $38,000,000 for improving and extending refining facilities, $15,000,000 for construction of new tankers, $24,000,000 for marketing facilities, and $8,000,000 for miscellaneous purposes.

Panhandle-Illinois lines transferred

Transfer of the properties of the Panhandle-Illinois Pipe Line Company, worth approximately $2,890,000, to the Illinois Natural Gas Company and the Panhandle Eastern Pipe Line Company was approved last week by the Illinois Commerce Commission.

Kansas Commission assessment reduced

Assessment against oil producers in Kansas for defraying expenses of the Kansas Corporation Commission has been reduced from one fifth to one tenth of a cent per barrel. The reduction applies to production for June.

The higher cost was assessed October 30, 1937, when the commission was faced with supervising eight-hour potentenials on Kansas wells. Since then the potential requirements have been shortened and the number of completions in Kansas has dropped.

Anti-Trust

[*Continued from page 46*]

the motions are overruled. Defendant companies are liable to maximum fines of $5000 each, while individual defendants may be fined $5000 and sentenced up to one year in jail.

Early last month, 13 oil companies and 11 of their officials pleaded nolo-contendere to a second indictment and were fined $15,000 each and a total of $25,000 in costs. Trial of nine other companies and their executives, who did not enter into the "no defense" plea, are to be tried September 23.

The first indictment, trial of which oil companies lost before the Madison jury, charged illegal operation of buying pools in the East Texas and Mid-Continent fields in an effort to artificially raise gasoline prices, while the second charges use of uniform contracts in a move to restrict jobber margins.

CALIFORNIA CRUDE OIL PRICES

(Posted February 26, 1936; except El Segundo and Wilmington, posted October 15, 1937, and Greeley and Canal posted December 22, 1937). All gravity above those quoted take highest prices of that field.

Gravity	El Segundo & Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Ingle wood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Springs	New Hall McKittrick Kern River Round Mountain	Greeley, Canal	Mountain view	Midway-Sunset Buena Vista Hills Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Wilmington
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76		$.80	$.76	$.76	$.77	$.78		$.70	...	....	$.70	$.70	$.70	....	$.75
15-15.9	.80	.79	.78	79	80	.76	..	80	76	76	.77	78	.	.70	...	...	70	70	70	....	.75
16-16.9	.80	.79	.78	79	80	.76	.	80	76	76	.77	78	...	.70	...	...	70	70	70	...	.75
17-17.9	.80	.79	.78	81	80	.76	...	80	76	76	77	78	.	.70	...	...	70	70	70	...	77
18-18.9	.80	.79	.78	84	80	.78		82	76	76	77	78	.	70	...	...	70	70	70	.	79
19-19.9	82	.79	.82	87	84	.81		85	76	.78	.77	.78	.	.70	....	$.70	74	74	71	$.70	82
20-20.9	85	.79	.85	90	88	.84		88	78	.82	.77	.80	.	....	...	.70	78	78	72	70	85
21-21.9	88	.79	.89	93	93	.88		91	80	85	.77	84	$.78	...	...	.73	82	82	74	70	88
22-22.9	92	.82	.92	96	98	.92		93	84	89	.79	88	.78	....	...	.77	87	86	78	72	92
23-23.9	95	.86	.96	99	1.02	.96	$.84	96	88	93	.82	92	.78	....	...	80	92	90	82	76	95
24-24.9	.99	.91	1.00	1.02	1.06	99	.88	.99	91	.96	85	96	82	....	....	84	97	94	86	79	99
25-25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	1.02	95	...	89	99	86		...	88	1.01	98	90	83	1.03
26-26.9	.06	1.00	1.07	1.09	1.16	1.06	98	1.05	98	...	92	1.03	90	Elwood	..	91	1.06	1.02	..	..	1.06
27-27.9	1.10	1.05	1.11	1.12	...	1.10	1.03	...	1.02	...	96	1.06	95	Ter-	$.84	95	1.10	1.06	...	...	1.10
28-28.9	1.14	1.10	1.14	1.15	...	1.14	1.07	..	1.06	...	99	1.10	99	race	88	99	1.15	1.10	...	...	1.14
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12		1.09	.	1.03	1.14	1.03	....	.92	1.02	1.20	1.14	...	....	1.17
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17		....	....	1.07	1.17	1.08	F.O.B.	.95	1.06	1.25	1.18	...	....	1.21
31-31.9	....	....	....	1.24	Line	1.24	1.22				1.11	1.21	1.12	Ship	.99	1.09	1.29	....	..	...	
32-32.9	....	....	....	1.27	....	1.27	1.27	Kettleman Hills			1.14	1.25	1.16	....	1.03	1.13	1.34	.	..	...	..
33-33.9	....	....	....		...	....	1.32	1.19			1.18	1.28	1.20	1.28	1.07	1.17	1.38			...	..
34-34.9	....	...	....		...	...	1.37	....	1.23	...	1.22	1.32	1.25	1.32	1.11	1.20	...			..	..
35-35.9	....	....	....		...	..	1.42	....	1.27	...	1.25	....	1.29	1.35	1.15		...			..	..
36-36.9	....	....	....		...	...	1.46	....	1.31	...	1.29	....	1.33	1.39	1.19		...			..	
37-37.9	....	....	....		...	...	1.51	....	1.35	...	1.32	...	1.37	1.43	1.23		...			..	...
38-38.9	....	....	..		...	...	1.56	.	1.39	...	1.36	..	1.42	....	1.27		...			...	..
39-39.9	....	...	....		....	...	1.61	....	1.43	...	1.40		....	....	1.31		....			..	..
40-40.9	....	....	..		...	..	1.66	....	....	..	1.43		...	....	1.34		....			..	..
41-41.9	....	....	....		...	..	...	....	..	..	...		..	....	1.38		....			..	..
42-24.9	....	....	....		...	..			..	..	..		...	....	1.41		....			..	..
43-43.9	....	....	....		..	..			..	..	...		..	....	1.45		....			..	..
44-44.9	...	...	...		....	...			.	..	..		..	....	1.49		....	....		..	..
45-45.9	...	...	...		...	...			.	..	..		..	....	1.53		....	....		..	...
46-46.9	...	...	...		...	...			.	..	..		...	....	1.56		...	....		..	..
47-47.9	...	...	...		...	...			.	..	..		...	....	1.60		....	....	..		
48-48.9	...	...											...	...	1.64		....	....	..		

FOR 4 1/2 YEARS
SOIL ANALYSIS SURVEYS

Have Proved Their Value in Many Areas

The Smith System of Soil Analysis Surveys offers a method of getting satisfactory geophysical information in areas where it has heretofore been very difficult to obtain. Whether in the Permian Basin with its troublesome transition of beds, the swamps of Louisiana or the excessively folded regions of North Central Texas . . . the geochemical determinations by the Smith System are a valuable aid in finding oil.

Ten years of research and more than 4 years of making commercial surveys have demonstrated the practical value of our work in using the heavier ends of the hydrocarbons which filter upward through the earth through all intervening beds. Our work has proved that higher readings are found over the disturbed edges of structure and that no beds are impervious to the upward flow of heavier hydrocarbons.

Our system requires taking samples of surface soil at exact intervals of 1/10 mile in lines extending in several directions over the land. The interpretation of our findings is based on a study of **all** these samples, with special attention given to especially high showings in relation to the mean average for the group. The utmost care is taken in the quantitative laboratory analyses and in computing the mathematical curves which, together with other data, are used by our interpreters.

All types of structures have been successfully outlined, anticlinal structures, faulted traps, and salt domes . . . an interesting number have been proved by drilling. Without obligation, ask us to show you the results obtained by the Smith System of Soil Analysis Surveys.

Write, wire or telephone today.

GEOLOGICAL
Scientific Service Co.

Robt. O. Smith, President

411 PETROLEUM BUILDING **FORT WORTH TEXAS**

Houston Office: 703 Second National Bank Bldg.

WEEK'S DRILLING HIGHLIGHTS

ONE foot of saturation causing a well to fill 2500 feet with oil from 3002 feet indicated Jefferson County, Illinois, might soon get its first McClosky sand field. Olney field was extended a half mile north by a 3100-foot McClosky well.

In Wyoming, a north flank test of Elk Basin field has 600 feet of oil in the hole from 1626 feet, while another on the Shoshone anticline in northern Wyoming had 40 feet of saturated formation at 4740 feet.

South and North Louisiana

Bird Island prospect in South Louisiana may be turned into an oil field soon, due to a showing in an important Plaquemines Parish wildcat. Another wildcat on Convent prospect in St. James Parish logged a gas sand and blew out. On the West Lake Verrett prospect in St. Martin Parish a third wildcat continues to log oil showings. New fields for the region also are indicated by showings in wildcats in Terrebonne and Vermilion Parishes. Sorrento field got a new gas sand at 1293 feet and Charenton got a new oil sand at 2200 feet.

Encouraging findings on the outskirts of Lisbon field in North Louisiana assure an active drilling campaign there for months.

Arkansas

Schuler field, Union County, Arkansas, was extended a quarter mile east by a Jones sand producer. Another test in the same county, seeking to determine Permian possibilities, drills ahead after logging formation which showed 30 gravity oil.

Oklahoma-Kansas

Oklahoma got a new pool called Meridian when a Logan County wildcat which has been showing for production for some time initialled 1080 barrels. Lucien pool, same county, was extended north. Wildcat development along the Nehema ridge north and south of Oklahoma City field increased. Kay County has a new Wilcox sand pool in prospect.

A Sumner County wildcat recently looming as a pool opener failed to produce after a shot, but a new pool was discovered between Ainsworth and South Ainsworth fields, Barton County. Bloomer field, same county, was extended north.

Southwest Texas

Six miles northeast of Pearsall a wildcat on a large structure got Edwards limestone at 5632 feet and looms as a field opener.

Extensions were indicated northeast and east for Frio and Vicksburg sands in Alice field, and the second well in North Agua Dulce extended the field a half mile east.

In Jackson County the West Ranch test apparently affords a new gas field with Frio sand furnishing the reserve.

Woodsboro prospect in Refugio County probably will pay off, a wildcat still drilling having shown for a distillate producer at 5400 feet. In Starr County the third test on La Reforma prospect cored the same high pressure gas sand which caused junking of the two previous tests.

A wildcat showed a gas zone in Cockfield between 6101 and 6184 feet in Live Oak County, but continues drilling.

A small well promised to revive interest in the Emma pool of Andrews County, West Texas.

West and North Texas

In North Texas a Wichita County wildcat scheduled a production test of oil saturated lime at 5120 feet. Promise of a new oil horizon between the Strawn and Ellenberger in Panther pool, Archer County, when a test turned out to be dry.

Comparison of Permits Granted for New Wells

STATE	Week Ending July 2	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	16	16	128	106	240
California	20	20	625	799	1,584
Louisiana	37	37	671	636	1,227
Kansas	26	26	806	1,354	2,663
Michigan	13	13	385	505	958
Oklahoma	33	33	1,048	1,522	2,711
Texas	318	318	7,176	9,422	17,238
Total	463	463	10,839	14,344	26,621

Summary of Wells Completed in the United States
Week Ending July 2, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	....	....	....	....	.....	2	1
Arkansas	1	1	....	....	552	121	44
California	35	29	....	6	16,411	632	692
Colorado	....	....	....	....	.....	5	6
Florida	....	....	....	....	.....	....	.....
Georgia	....	....	....	....	.....	....	.....
Illinois	54	40	1	13	12,516	509	59
Indiana	1	1	....	....	317	55	58
Kansas	21	13	1	7	13,024	908	1,253
Kentucky	20	11	4	5	1,298	357	144
Louisiana	25	15	2	8	5,629	553	423
Michigan	21	12	1	8	2,380	420	438
Mississippi	....	....	....	....	.....	10	6
Montana	....	....	....	....	.....	27	76
Nebraska	....	....	....	....	.....	1	.....
New Mexico	9	9	....	....	5,827	269	358
New York	14	12	2	....	48	380	561
Ohio	18	4	8	6	19	468	726
Oklahoma	41	28	1	12	3,417	1,122	1,571
Pennsylvania	51	48	2	1	51	1,144	1,456
Tennessee	....	....	....	....	.....	2	.....
Texas	223	167	6	50	226,581	6,733	7,521
Utah	1	....	....	1	.....	1	.....
West Virginia	13	2	8	3	15	366	442
Wyoming	1	1	....	....	400	50	53
Total this week	549	393	36	120	285,485	14,136	15,888
Total last week	540	397	26	117	345,703	....	.....
Total this year	14,136	9,778	1,041	3,317	10,139,471	....	.....

California Fields

New deep production established in Coalinga Extension.

San Luis Obispo wildcat has thick Monterrey shale section.

Los Angeles. — Definitely establishing a new deep zone discovery three quarters of a mile from the south tip of the east side field at Coalinga Nose, Fresno County, Petroleum Securities Company late last week swabbed in Gatchell 2 for an initial yield of 2500 to 3000 barrels of oil per day from 6908 feet, with oil string landed to 6690 feet. Swabbing got under way at 6 p.m. Thursday and continued without let up for four hours, when the well started flowing and by 1:30 a.m. Friday had cleaned up and was flowing into two 5000-barrel tanks. The crude will be trucked 30 miles to Los Nietos Producing & Refining Company, a topping plant located at Kettleman Hills Middle Dome, for the present, with the possibility that Associated Oil Company will ultimately make a deal for immediate purchases.

Gatchell 2 started flowing through a ½-inch choke with 1080 pounds tubing and 1360 pounds casing pressure.

Officials of the company who watched the well come in reported that during a brief flow test the well produced at the rate of 20,000 barrels daily. After establishing its potential the well is expected to be choked back to conform to conservation regulations and permitted to flow the maximum of 300 barrels daily for new wells.

A few days ago Gatchell 2 came in during a formation test and was reportedly good for 3000 barrels per day It produced from only 30 feet of sand, but was killed and an additional 63 feet of oil sand was cored before the second attempt was made to complete it. The initial completion brought about immediate steps to offset this well, Superior Oil Company moving in on Section 7-20-16, Associated Oil Company in Section 12-20-15, The Texas Company in Section 12-20-15, and Petroleum Securities Company staking location for Grimes 1, Section 12-20-15. Universal Consolidated Oil Company is rigging Leavitt-Hintze 1, S½ SW 12-20-15, an 80-acre government parcel, while another 80 described as N½ NE 24-20-15. one mile south of Gatchell 2, next will be in line for exploration.

Controlling approximately 3500 acres, development of the acreage surrounding the Gatchell well will be carried on jointly by Petroleum Securities Company, Seaboard Oil Company and Tide Water Associated Oil Company. Completion of this well is expected to bring about resumption of drilling operations in Ladd 1, Section 28-20-16, midway between Gatchell 2 and Lillis Welsh 1, a deep test that sought the Eocene at the extreme northwest tip of Kettleman Hills. Only 8 miles separates Lillis Welsh 1 and Gatchell 2.

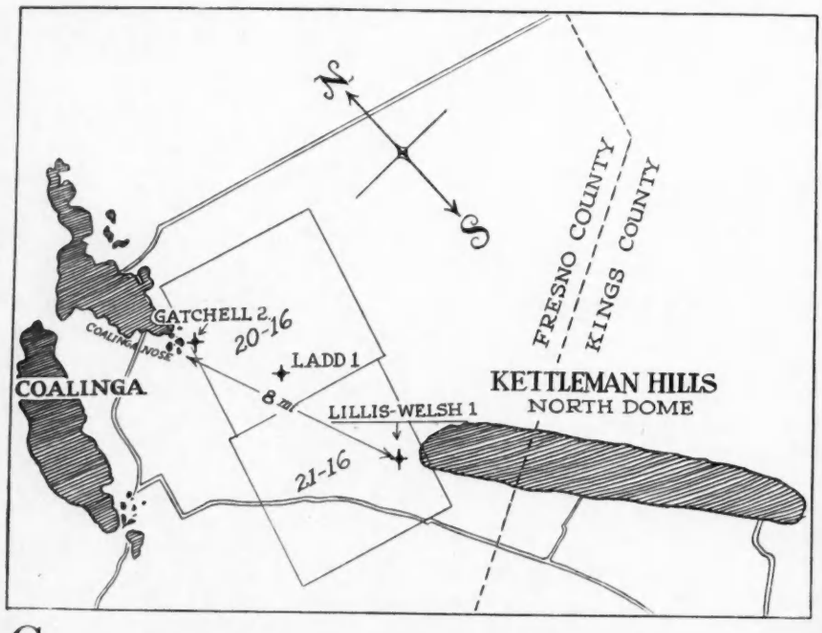
An orderly development program suggested by the government will be followed at Coalinga Nose, according to J. R. Pemberton, oil umpire. One well to each 20-acre block will be observed to eliminate any chance of overdevelopment that might demoralize the crude market. Standard Oil Company has every alternating section close to Coalinga Nose but has not made its intentions known as to development.

D. & B. Oil Company's No. 1, near the intersection of 253rd Street and Vermont Avenue, south of the Torrance oil field, swabbed in for an initial yield of 750 barrels of 29 gravity oil per day from 5275 feet with 8⅝-inch casing set at 5120 feet. Shortly after coming in it was chocked to 350 barrels daily along with 250,000 cubic feet of gas. Gasoline content is 2.6 gallons per million cubic feet.

Considerable new activity is slated for the new productive area, with reports that Jack English, Hansco Oil Company, Ring Oil Company's F. E. Fairfield and The Texas Company are preparing to start tests. The first offset is expected to be Fairfields No. 1, to go down on a 2½-acre parcel in Block 15, about 1500 feet west of the D. & B. well. The Texas Company will drill a second well, Wilson Community 2, near the corner of Pennsylvania Avenue and 230th Street.

Unofficial reports state that California Lands, Incorporated, active during the past year in the Santa Maria Valley field, will enter Torrance, while The Capital Company, a subsidiary of Bank of America owns in fee 37½ acres 1400 feet east of the discovery well. Seven new wells have been completed in the so-called "hot spot" during the past 10 days.

Wood-Callahan Oil Company, long active in the San Joaquin Valley and which originally got its start seven years ago in the Signal Hill oil field, has returned to active operations in the Los Angeles Basin with the acquisition of a 120-acre block a half mile north of Hilldon Oil Company's holdings in the northwest Long Beach



COMPLETION of Gatchell 2 by Seaboard Oil Corporation, Petroleum Securities Company and Honolulu Consolidated Oil Corporation at Coalinga Nose offers several interesting and important angles.

It definitely proves the importance of Eocene zone production, and a possible link between Kettleman Hills North Dome and Coalinga, as well as the significance of earlier attempts to develop this district through drilling of Lillis & Welsh 1 and Ladd 1 a few years ago.

Shortly after development of Kettleman Hills got underway, the Doheny interests drilled Ladd 1, Section 28-20-16, approximately half way between Kettleman Hills and Coalinga. The project prospected to around 7800 feet. The completion of Gatchell 2 has a lot of bearing on the entire area, as it is producing from the Eocene just short of 7000 feet. This would indicate that the same horizon may be found in the Ladd well considerably deeper. Apparently, it is stated, a saddle exists between the Lillis Welsh wildcat, which once held the world's record for depth, and the Ladd well, although this cannot be definitely settled until the latter is drilled deeper, which in all probability will now be done. The Lillis Welsh well explored to more than 11,000 feet, and while it had scattered showings did not complete commercially. Now that Gatchell 2 has definitely proved the existence of production in the Eocene only 7 miles northwest of Kettleman Hills it is expected that a brisk campaign to develop this zone will be made.

field. The company expects to launch an active program this fall.

Thickest Monterey

Petroleum engineers last week stated that the thickest body of Monterey shale ever cored in California was found in Hancock Oil Company's Dicks 1, wildcat situated in Section 20-12-33, in the Huasna Valley, San Luis Obispo County. Located 12 miles north of Santa Maria, Dicks 1 found the Monterey formation practically at grassroots and it extended to present bottom at 4035 feet. Originally drilled to a depth of 3600 feet a year ago by Ohio, Dicks 1 was taken over by Hancock on an operating arrangement and deepened. Before Ohio turned the well over to Hancock it was reportedly good for 400 barrels of low gravity oil per day.

Acquisition of 1000 acres in the Rio Vista gas field is revealed by Pacific Public Service Company through its subsidiary, Natural Gas Corporation. It generally takes gas from Kettleman Hills or other San Joaquin Valley fields, as it is controlled by Standard Oil Company. The land in question is midway between Sacramento and San Francisco. Twenty-one wells have been completed in Rio Vista with a combined capacity of 50,000,000 cubic feet of gas per day. The Texas Company has just brought in Midland Fee 1 for 6,000,000 cubic feet of gas per day, extending the field about two miles southeast.

CALIFORNIA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Lomita—		
D & B, No. 1	350	5275
Dominguez—		
W. W. Stabler, Continental 2	460	4354
Huntington Beach—		
J. E. F. Oil, Schaaf 1	110	4497
Long Beach—		
Hilldon, Amebco 4	700	4494
Richfield, Bixby 5	208	4583
Torrance—		
Consolidated Petroleum, Kenny 1	115	5000
Elexico Oil, Allen K 1	350	5015
Grubbs & Main, Lyman 1	295	5025
Hansco, No. 1	215	4999
Walter Hughes, No. 2	200	5001
Texas, Wilson 10	687	5020
Wilmington—		
Hancock, Harbor (LB) C-24	310	3670
Macson, G-55-1	350	3670
Richfield, R. G. Terminal (LB) 2	104	3880
Victory (LB) 1	140	3456
Union Pacific, UP (LB) E-8	1379	3915
Yorba Linda—		
Burmah, Sloan 1	130	2380
Temblor Hills—		
Chico Martinez, Holly 1	34	1108
Belridge—		
Belridge, No. 26	209	8670
Canal—		
Shell, KCL A-32	1140	8329
Kern River—		
Helm & Smith, No. 4-A	10	673
Kettleman Hills N. D.—		
Standard, 58-33J	755	8310
McKittrick—		
Franco-Western, No. 15	270	2206
Rio Bravo—		
General, Wagner 2	640	11,500
Superior, Anderson 1	6100	11,608
Round Mountain—		
D. G. Vedder, Bell 6	300	1907
Santa Maria Valley—		
Ido J. Banducci, G & B 1	200	5390
Selegna Drilling, S. M. 1	250	5250
Rincon—		
C. C. M. O., B-21	400	4536
Monterey Park—		
Monte Cristo, Garvey Ranch 1	*	5412
Dominion—		
Geo. W. Dean, Dean 1	*	1177
McFarland—		
C. C. White, No. 1	*	2395
Midway Sunset—		
A. B. S. Corporation, Lewis 12	*	3912
Round Mountain—		
Pan May, No. 1	*	1085
Shell, Caldwell 20	*	2006

*Failures; †Junked; ¶Million cu. ft. gas.

Kansas Fields

Sand load delays valuation of Sumner County strike. New pool between Ainsworth and South Ainsworth. Arbuckle lime well extends Bloomer field north.

Wichita.—Until the land load can be bailed from the Sumner County Wilcox sand pool discovery, S. A. Murphy's Tate 1, SEc NW 32-21-2e, importance of the strike cannot be determined. The Wilcox sand section was shot with 35 quarts of nitro last week and a sand load of 220 feet and an oil load were used.

Bailing was started, but the fluid level had failed to rise at the end of last week to the point it stood (2200 feet) the third day after entering the formation at 3722 feet and drilling to 3736 feet. Because of the heavy sand load it could not be determined whether the fluid was being held back or whether the well is no longer showing for a pumping producer of between 250 and 500 barrels.

In the western part of the state a new pool was discovered in Barton County between Ainsworth and South Ainsworth fields. Bloomer field, same county, was extended a quarter of a mile north. A second well for the Hoisington pool, Barton County, was completed at 3462 feet, Arbuckle lime, by Thayer Drilling Company. Soderstrom B-1, SW SW NE 21-17-13w, made 458 barrels. The other Hoisington well, a location west, is producing from the Lansing lime.

Arbuckle Lime Strike

Final completion of the Barton County wildcat, Lensner 1, SW SW SE 3-17-13w, has left the impression that this is a new pool rather than a line between the Ainsworth and South Ainsworth pools. The well was drilled by Western Kansas Oil & Refining Company and the Republic Natural Gas Company. It began showing for production two weeks ago when top of the Arbuckle lime was found at 3362 feet. It was drilled 5 feet into the lime and treated with acid. On potential test last week it pumped at the rate of 1665 barrels daily on potential.

A half mile to the north Armer and Associates' Seyfert 1, NW SW NE found top of the Arbuckle lime at 3380 feet, first saturation at 3395 and drilled to 3399, where 1200 feet of oil rose in the hole in 48 hours. Casing was set at 3380 feet. This well still looks good for production, but its preliminary showing and structural trend indicate that production will not connect with the Ainsworth pool another half mile to the north.

Western Kansas Oil & Refining Company and Republic Natural Gas Company have staked location for Gage 1, NWc 2-17-13w.

An extension of a quarter of a mile north for the Bloomer pool, Barton County, was marked up by completion of McLean 1, SE NE NE 25-17-11w, by Sinclair Prairie Oil Company for 320 barrels initial from the Arbuckle lime at 3304 feet.

New Sand Indicated

A showing from the Kansas City-Lansing lime section in a well previously dry in the Viola lime gave indications of both an extension as well as another production formation for the Lerado pool, Reno County. A. R. Jones and Associates' Shepherd 1, NWc 22-26-9w, was dry in the Viola lime five months ago. Recently it was plugged back to test shallower shows and last week was looking favorable for small production. It is a half mile south of the Lerado pool.

The third Arbuckle lime producer for the Harbiger area, Rice County, was assured last week when potential test was started on Volkland B-3, SWc

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton County—		
Thayer Drlg., Soderstrom "B" 1, sw sw ne 21-17s-13w	458	3462
Magnolia, H. J. Roetzel 17, nw se		
Cowley County—		
A. Brewer, City of Winfield 2, cw½ ne nw sw 15-30s-4e	120	2804
Finney County—		
Atlantic Ref., Nunn 1, se se ne 27-21s-34w	604	4667
Greenwood County—		
F. Kelly et al, Neuschwanger 1, ne ne nd sw 25-22s-12e	*	397
Harvey County—		
Olson Oil, G. B. Nelson 7, ce½ e½ nw¼ 30-23s-3w	237	3368
Ness County—		
Schoeppel & Elmore, Moses 1, csw nw 10-18s-25w	599	4353
Reno County—		
L. E. Douglass, Durand 1, se se sw 3-23s-5w	*	4024
Rice County—		
West Kansas O&R, Leach 1, nw nw sw 22-18s-9w	*	3362
Mid-Continent, Schlicht 1, ne ne se 6-18s-10w	2665	3215
Marylyn Oil, Vincent 1, nw nw ne 5-21s-10w	*	3372
Rooks County—		
Shields, Anschutz 1, sw sw se 2-14s-13w	*	3466
Russell County—		
Shields et al, Giese 2, sw se ne 28-14s-13w	2685	2907
Sinclair Prairie, Rogg 2, se ne se 29-14s-13w	1063	2930
J. J. Hall, Landon 1, sw sw se 11-15s-14w	1029	3100
Sedgwick County—		
Union Oil & Roy. et al, Howell 1, sw sw sw 6-29s-1e	*	3790
Stafford County—		
Stanolind, J. K. Fischer 1, nw sw sw 31-21s-12w	961	3649
Pure Oil Co., Krey 4, sw sw se 14-24s-11w	1778	3829
Stevens County—		
Kuhn Bros., Burrows 1, cnw¼ 22-34s-38w	¶6.5	2895
Woodson County—		
Cleveland Oil et al, Insurance Co. 1, se se ne 34-25s-15e	10	1436
Ward McGinnis, G. Hill 1, csw se 32-26s-15e	*	1340

*Failures; †Junked; ¶Million cu. ft. gas.

NW 5-18-10w, drilled by Skelly Oil Company. Top of the Arbuckle lime was found at 3202 feet and drilled to 3209 feet, where it filled 300 feet with oil in three hours and in five hours was slopping over the casing. It was treated with 1000 gallons of acid and tubed before pumping test started June 29. After 4 hours it put 446 barrels of oil in the tanks and was shut down to repair rods. This test indicated a well of between 2000 and 3000 barrels on potential calculation, characteristic of the other production from the Arbuckle lime.

Continued success of Arbuckle lime drilling assures further testing of the area between the Stumps and Bushton field, both of which produce from the Lansing as well as the Arbuckle lime. The Harbiger area first came in for Lansing lime production and Arbuckle lime production was developed after a test was found dry in the upper lime.

Another wildcat test for Ellis County was started. Carter Oil Company's Gottschalk 1, 35-15-18w, is rigging up.

Stafford County drew two wildcat tests. Western Kansas Oil & Refining Company and Associates staked Barnes 1, NWc 8-21-12w, while Atlantic Refining Company and Associates had location made for Wise 1, NWc 13-24-14w.

The Rooks County wildcat of Carter Oil Company's Whitford 1, NE SE 12-7-17w, was abandoned after a test at 2895 feet failed. This well was drilled to 3355 feet in Arbuckle lime, top 3321 feet. Perforated between 2893 and 2902 feet and treated with 4000 gallons of acid, it made a slight oil show. After shooting between 2675 and 2685 feet, it was given another acid treatment, and then abandoned.

A Russell County wildcat test of Arbuckle lime went off the drilling list with abandonment at 3429 feet of Baxter 1, NW NW SE 4-15-15w, by Web-Son Oil & Royalty Company. The well was 1¼ miles northwest of Donovan pool.

Possible connection between the Eichman and South Trapp pools, Barton County, was indicated by a showing from the Arbuckle lime in Cities Service Oil Company's Bittern D-2, NEc 8-16-13w, which filled 2200 feet with oil, 5 feet in the Arbuckle lime, topped at 3391 feet.

Dry holes north and south of the Schroeder pool, Ellsworth County, apparently restrict it to small area. Cities Service Oil Company found the Arbuckle lime dry in Splitter B-1, CWL NE 20-17-9w, 3272 feet, a quarter of a mile north of production and Plogg 1-B, CNW 32-17-13w, three-fourths of a mile southwest of production, was a failure in the Arbuckle lime at 3320 feet. The pool has four producing wells in the Arbuckle lime.

Indian Territory Illuminating Oil Company, Bartlesville, last week let contract for drilling 15 wells on proven leases in the South Silica and Trapp pools, Barton County, and the Stoltenberg pool, Ellsworth County.

Hamby hearing

The Texas Railroad Commission has scheduled a hearing for July 15, at Austin, on the new Hamby field located in Jones and Shackelford Counties. At this hearing the commission will take evidence upon which to base spacing and other operating rules for the new field.

Oklahoma Fields

Meridian field discovery initials 1080 barrels. Trying to restore Delaney wildcat's production. Will test Prue sand in Lincoln County wildcat.

Tulsa.—Favorable showing from a drill-stem test late last week gave indications of the opening of a second Wilcox sand pool in northern Kay County, a mile southeast of the old Braman field. The test is being drilled by Helmerich & Payne on school land, SW SE SW 16-28n-1w.

The test was made in the second Wilcox sand from which the well flowed 10 minutes, amount not determined, with gas volume estimated at 2,500,000 cubic feet, with packer set at 3620 feet, 25 feet from the total depth and 17 feet below the top of this formation.

Previously the well had had no favorable showings and the hole was being cored ahead of drilling in the hope of picking up saturation below the Wilcox. It had top of the Oswald lime at 3075 feet, top of the Mississippi lime at 3405 feet, top of the Chattanooga shale at 3470, top of the Misener sand at 3595 and top of the Ordovician series at 3508 feet, with the first Wilcox member picked up at 3530 feet. A core in the first Wilcox between 3532 and 3536 feet recovered hard sand. Top of the second Wilcox member was picked up at 3603 feet, after which the hole was carried to 3645 feet by coring and drilling.

The Braman pool proper has no Wilcox sand production but a small area of Wilcox production was developed last year to the south of the old pool.

The same concern early this year completed a dry hole, Scott 1-A, SEc NE 20-28n-1w, three fourths of a mile southwest of the well now showing for a producer. The dry hole found both Wilcox formations dry and went into the Arbuckle lime, total depth 3716 feet. Other dry holes in the area indicate that only a small pool can result from successful completion of the school land well.

Further testing will be done after another string of casing is set and tanks are completed.

One of the three Oklahoma Wilcox sand strikes of May went down as a final completion last week when Sinclair Prairie Oil Company recorded an initial of 1080 barrels from Crews 1, SWc NE 27-16n-1e, Logan County. The field was officially named Meridian. Initial output was flowed through tubing, set at 5221 feet, after acid treatment with 5000 gallons. Plugged back depth was 5233 feet, total depth 5238 feet, in the first Wilcox sand. First oil showed at 5221 feet May 28.

Pipe line is being built to a rail connection and the oil will be handled by tank cars.

Completion of the discovery well will result in some offset drilling although no locations have been announced.

Last week closed with efforts still being made to regain flowing production from the Cleveland County wildcat of W. A. Delaney in SE SW SW 12-7n-2w. It began flowing oil and water from the second Wilcox sand at 7670 to 7682 feet in May. Two weeks ago the well ceased flowing and plugging back was begun. Since this well began making oil and water the whole area has been reworked by shooting and some core drilling has been done. Regardless of the outcome of plugging back in the first well, the area is certain to have other tests.

The Payne County discovery wildcat of The Texas Company, Lonagan 1, SWc 12-17n-1e, is still shut down at plugged back depth, 4960 feet, after drilling to 5006 feet.

Set Casing to Test

A showing from the Prue sand in a Lincoln County wildcat resulted in a decision to set casing and test Indian State Oil Company's Bailey 1, NW NW NE 2-12n-5e. Top of the Prue sand was found at 3222 feet and drilled to 3258 feet with the last 10 feet saturated. The well is a half mile south of the small Wilzetta pool, which produces from Hunton lime.

The new Ramsey field, Payne County, drew another outpost test. W. H. Sherry will drill Horton 1, NE NW NW 22-19n-1e, six miles north of Ramsey production. Other holders of nearby acreage are Amerada Petroleum Corporation, Burke-Greis Oil Company, Sinclair Prairie Oil Company and Denver Producing & Refining Company.

A half mile south of Ramsey field, E. H. Moore, Incorporated, and The Texas Company are drilling below 1500 feet in Means 1, NW NE NE 19-18n-2e. Both tests are outside the community block where 9 wells are producing. Mid-Continent Petroleum Corporation is operator of the block.

The Seminole County wildcat, Denver Producing & Refining Company's Mathis 1, SWc NW 7-6n-6e, began making some water last week. It was put on pumping test the week previous, producing from the Simpson dolomite 3835 to 3842 feet. Last week it was making close to 50 percent water along with 50 barrels of oil. The well is between the Konawa and Grayson pools.

A small gas well was the final result for the Payne County wildcat of R. L. Kemp and Associates' Rafferty 1, SEc NE 6-18n-5e, which had a showing from the Wilcox sand in May. It was plugged back to 3470 feet and made 5,000,000 cubic feet from the Skinner sand.

Lucien Extended

An extension two locations north was marked up for the Lucien pool, Logan County, by completion of Lake

Petroleum Company's Guthrie 1, SW NW SE 31-21n-2w. It had top of the first Wilcox sand at 5380 feet and drilled to 5425 feet and flowed 427 barrels in 24 hours.

The Logan County wildcat, McCully 1, C W½ NW 266-16n-2w, south of the Crescent pool, being drilled by Superior Oil Company of California, is running high as checked on the Tonkawa series, topped at 4410 feet.

OKLAHOMA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo County—		
Magnolia, Clyde Pickard 3, sw ne se sw sw 25-6n-10w	82	3402
Ray Stephen, Thompson 1, se se nw 27-6n-10w	50	5505
Carter County—		
Robert Owen, McLish 3, nw ne ne ne nw 30-2s-3w	1	355
Cleveland County—		
Mays et al, Parsons 1, sw sw se 30-9n-1e	*	3605
Creek County—		
Beal et al, McCauley 1, sw se se 9-17n-10e	*	3044
J. E. Crosbie, Escoe 9, sw nw sw 26-18n-8e	75	2598
L. B. Jackson, Hagan 1, se nw nw se nw 25-18n-9e	282	3056
Theo. Cash, Carr 1, cn½ ne ne ne 26-18n-9e	*	3197
Klingensmith, Brown 6-A, cs½ n½ n½ nw se 5-16n-11e	†5	542
Okla. Oil, Maxwell 12, se sw nw se se 8-16n-12e	*	2908
Kay County—		
Clark Nye, Willin 1, se se sw 24-27n-4e	*	3048
Lincoln County—		
Sinclair Prairie, Rigney 1, sw sw sw 3-13n-6e	35	4252
Wilcox O&G, DeLozier 5, sw se sw 10-14n-6e	79	3012
Summit Drlg. Co., Erwin 3, sw sw sw 35-15n-2e	375	5054
Muskogee County—		
Jackson, Smith 1, ne sw sw ne ne 23-16n-15e	*	1147
Okfuskee County—		
Buell Inc. et al, Harjo 2, sw ne sw 4-13n-11e	*	3210
Oklahoma County—		
Oil Inc., Huddleston 1-A, cn½ s½ sw sw ne 19-11n-2w (pb 4123)	40	4640
Okmulgee County—		
Price et al, Grayson 3-A, nw nw ne se ne 21-14n-14e	3	653
C. Beal, J. Marshall 1, ne ne nw 28-15n-12e (pb 2230)	20	2726
Finance Oil, Drinker 1, nw nw ne 28-15n-12e (pb 1590)	5	2228
Young, Bruner 5, cn½ ne se 5-15n-14e	*	1658
Osage County—		
Pure Oil Co., 107, se nw sw nw se 9-23n-8e (otd 2270)	20	2384
North Avant Unit, 8, sw nw nw nw se 31-24n-12e (otd 1723)	3	1750
Sinclair Prairie, 2, se nw nw nw sw 22-25n-6e	50	2732
Pawnee County—		
Sinclair Prairie, J. N. Berger 7, ne ne ne se 17-21n-8e (otd 1717)	40	2119
O. O. Owens, Riddle 1, ce½ ep nw 8-23n-5e	*	3390
Pontotoc County—		
Anderson Prichard, Mayer 1, se se sw 19-3n-8e	*	1425
Osborn, Jones 1, ne nw sw 33-5n-8e	147	2541
Pottawatomie County—		
Magnolia, Richardson 5, ne sw sw 15-7n-4e	26	3720
Sinclair Prairie, Gilbreath 1, nw se se 25-7n-4e (otd 4217)	56	4300
Gilbreath 3, sw se se 25-7n-4e	395	4296
Alma Oil Co., Curley 1, sw sw nw 33-7n-5e (otd 4060)	430	4081
W. B. Pine, Amoson 2, sw se sw 15-6n-6e	100	3584
Seminole County—		
Atlantic, Damron 4, sw ne nw 22-6n-6e	561	3504
Sinclair Prairie, Tinnison 2, ne se nw 22-6n-6e	410	3573
Malernee et al, Jordan 1, nw ne sw 29-7n-6e	*	4613
Hall, Dees 1-A, sw sw ne 11-8n-6e	*	3522
J. D. Campbell, Mary 1, sw se sw 8-9n-7e	25	3405
W. C. McBride, Hausley 2, nw sw sw 8-9n-7e	100	3495
The Texas Company, A. E. James 2, sw sw se 6-9n-6e (pb 4339)	5	4387
Stephens County—		
Charles W. Scott, Ida Billy 1-B, sw se nw sw ne 9-3s-5w (pb 900)	2	1689

*Failures; †Junked; ¶Million cu. ft. gas.

The Garfield County wildcat of Indian Territory Illuminating Oil Company, Kichin 1, C SE SE 17-22n-5w, is also checking high on the Tonkawa marker, which was entered at 3050 feet.

An east offset to the discovery well of the Waukomis field, Garfield County, Magnolia Petroleum Company's Clark 1, SEc 28-21n-6w, is drilling in lime, topped at 6380 feet.

R. H. Hollenbach and Associates are slated to drill a Noble County wildcat test southeast of Perry in Section 9-20n-1e. The same interests have made location in Cleveland County for Mantooth 1, NWc 24-6n-1e, east of Lexington on acreage farmed out by Indian Territory Illuminating Oil Company. This test will be 15 miles southeast of the Noble discovery well which produced from the second Wilcox sand for two weeks and went dead.

After several unsuccessful efforts to gain production from the Oolitic lime, Simpson series, Carter Oil Company is plugging back to 7200 feet in Harley 1, C NW NW 19-2s-3w, Carter County. It was first acid-treated at 8280 feet. When plugged back to 8225 another acid treatment resulted in salt water. It failed to respond to gas lift at each depth.

The third producer for Frederick pool, Tillman County, was completed last week by Indian Territory Illuminating Oil Company. Graham 1, SW NW SE 1-3n-19w, pumped 480 barrels from the Canyon lime. Depth is 3085 feet.

Drilling in the northeast section of the Cement pool, Caddo County, was halted last week when a blowout resulted while crew was washing drill pipe loose in Olson Drilling Company's Rigney 1, NEc SW 12-5n-9w. Depth of the well is 6180 feet. The gas began channeling, and all nearby rigs were shut down. Phillips Petroleum Company evidently has a small producer in this part of the field as Royse 1, NWc NE 12-5n-9w, is swabbing around 100 barrels daily from 5712 feet.

West Texas Fields

Upturn in field and wildcat drilling predicted. Gaines County wildcat to have 6000-foot objective. Interest in Emma pool, Andrews County, revived.

Midland, Texas.—An upturn in routine field developments and widcatting is in prospect for the West Texas district. Drilling has gradually tapered off during the past six weeks due to the uncertainty of the crude market and price structure. Enforcement of the 5-day production week likewise discouraged drilling and complicated the financial arrangements of the smaller units. Pipe line connections for new completions are no longer difficult to obtain, although large crude purchasers reluctantly provided same during May and the fore part of June.

Restoration of the district to a 6-day production week effective July 1 meets with the approval of the crude buyers who are also major producers of oil. Crude stocks have been reduced sharply since the first of the year, and withdrawals will continue during the remainder of the summer if the Sunday production holiday remains in effect.

Drilling curtailment in the district has resulted in the accumulation of a large volume of necessary offsets that were held up until conditions within the oil industry improved. These overdue tests are more prevalent in the Goldsmith, Harper, Foster, Wasson, Bennett and Snyder fields, and scattered areas in Ward, Winkler and Pecos counties.

West Texas has not registered an important oil discovery this year. Prospecting has declined sharply within the past two months due to the withdrawal of normal support in the form of dry hole contributions and the purchase of protection acreage. Independents carry on the bulk of the wildcat work, but are dependent upon support from the larger units.

Appropriations included in the majors' 1938 budget for the acquisition of wildcat acreage and for prospecting in this district have been conserved generally during the first half of the year. Wildcatters are patiently waiting for the resumption of normal spending, or positive signs that financial aid will be given exploratory operations. Experienced prospectors realize the advantages to be gained in having projects lined up when the purse strings are loosened, and are attempting to call the turn when orders will be released to resume buying on a large scale.

Gaines County is due for another wildcat project that will carry a 6000-foot depth contract in testing a block slightly east of a direct trend between the Means and Seminole fields. R. C. Conkling, J. M. White and J. O. Hughes are making location for King 1, to be assigned to either Section 2 or 6, League 305, Dawson County School Lands, 7 miles southeast of the town of Seminole. The original block comprised 5000 acres, and was taken on subsurface geology. Gaines County has two wildcats that are being closely scouted, J. T. Perryman et al's Doak-Pure 1, C NW NE D&W Section 43, Block H, 3 miles west of Cedar Lake, was drilling at 4725 feet, with an elevation of 3165 feet. V. R. Riddle and Warr's Brown 1, C NE NE C. & M. Section 26, Block G, was drilling at 4280 feet, having logged top of Yates at 3350 feet, or 67 feet below sea level. Doak-Pure 1 is higher structurally, with top of Yates at 3153 feet, or 12 feet above sea level.

Revival of interest in the Emma pool, near the south line of Andrews County, is to follow the completion of R. R. Rhodes and J. D. Tompkins' E. Cowden-Sinco 1, NE NE NW T&P Section 1, Block 44, T-2-N, which flowed

3 barrels oil hourly by heads, with gas volume rated at 1,500,000 feet daily. Two-stage acid treatment was slated for the saturated lime at 4168-4220 feet late last week. Location is 1½ miles northwest of Sinclair Prairie Oil Company's Emma Cowden 1, abandoned discovery. The latter's Cowden 2 is pumping 27 barrels oil daily from pay at 4210-92 feet, having plugged off water at 4377 feet.

Outpost for Slaughter

The Slaughter field, Hockley County's only producing area, is to be given an important northeast outpost through the immediate drilling of Gulf Oil Corporation's Mallett Land & Cattle Company 2, SWc Labor 25, League 34, Concho County School Lands. This eight-well area has been deprived of an aggressive drilling program due to the absence of a pipe line outlet, but scattered development has established it as one of the largest oil fields in the upper basin region. Two sets are underway within the productive limits. Skelly Oil Company's Ellwood 1, 17 miles northeast of the Slaughter field, was drilling at 3810 feet, with an elevation of 3409 feet. Geological markers have not been made public.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Wildcat)—		
Perkins et al, Cowden 1	*	8012
Seaboard Oil Corp., Munger-Nix 1	30	4526
Bailey County—		
Geo. Etz & B. A. Duffey, Enochs 1	*	4334
Coke County—		
H. E. Ogden & G. A. Simmons, Rawlings 1	*	3504
Crane County (Jordan)—		
Atlantic, University 5-A	1372	3556
Crane County (McCamey)—		
Rushwold Oil Co., Hughes-Gibbs (Conoco) 5	889	2328
Crane County (Gulf-McElroy)—		
Gulf, McElroy 175	522	3050
Ector County (Foster)—		
Landreth Prod. Corp., Johnson 1-B	778	4200
T. P. Coal & Oil Co., Foster 4	1052	4186
Ector County (Goldsmith)—		
Landreth Prod. Corp., Scharbauer 5-L	645	4200
Magnolia, J. D. Slator 6	260	4275
Ector County (Harper)—		
Amon Carter-John Naylor, Parker 4	769	4218
Continental, T. P. Land Trust 8-27	3265	4170
John Mabee & Blackstock, E. F. Cowden 3	1210	4277
Weekley Oil Corp., E. F. Cowden 1	476	4275
L. H. Wentz et al, P. Moss 3	1784	4185
Ector County (North Cowden)—		
Tide Water-Phillips, Smith 2	523	4330
Fisher County (Rotan)—		
Gen'l Crude Oil Co., C. Cassey 1	442	3553
Howard County—		
Moore Bros. Corp., O'Daniel 2-A	797	2847
O'Daniel 1-B	585	2861
T. P. Land Trust 6-A	551	2800
Sterling County—		
Loffland Bros. Co.-Moore Bros. Corp., J. S. Cole 1-A	*	1999
Upton County (McCamey)—		
J. K. Hughes Oil Co., D. Elder 1-B, (4-1/6-ac)	819	2285
Pittman & Simco, D. Elder 2	797	2282
Ward County—		
Gulf, Hutchings 101	104	3080
Winkler County (Kermit)—		
Humble, N. R. Colby 15-B	433	3050
Magnolia, Walton 161	924	2945
Winkler County (Scarborough)—		
Richardson Oils, Inc., Scarborough 6-F	201	2960
Yoakum County (Bennett)—		
J. L. Crump & Black Bros., Bennett 1-B	2233	5256
Yoakum County (Wasson)—		
Humble, H. O. Wooten 1	559	5034
Texas Co., A. B. Smart 1	731	5022
Yoakum County (Wildcat)—		
Magnolia, J. D. Webb 1	*	5639

*Failures; †Junked; ¶Million cu. ft. gas.

North Texas Development

Wichita County wildcat to test showing.

Saturated core in Archer County wildcat.

New horizon for Panther area disappointing.

Wichita Falls.—Production test was due late last week for Continental Oil Company and Petroleum Producers Company's State Asylum 1, southeastern Wichita County wildcat, after cementing 7-inch pipe at 5075 feet to test oil saturated lime at 5076-5120 feet followed by dry lime to 5129 feet. The test is in the lower section of the Pennsylvanian, and logged minor saturation at intervals below the regular Strawn zone, which was topped at 4193 feet. However, these reported shows did not justify running pipe for a production test. This deep project is in the southwest corner of Block 1, Cherokee County School Lands, 3 miles south of Wichita Falls. Hanlon & Buchanan, Inc.'s Fassett-Tuttle 1-D, southwest corner of Block 23, 3½ miles east of the above project, apparently missed production in the Strawn, and was drilling at 4610 feet.

Phillips Petroleum Company and F. P. Hynes' Arthur 1, NW NW SW GH&H Section 3, A-158, northwestern Archer County wildcat, was due for a drill-stem test after coring oil saturation at 5138-86 feet. Nominal showing in lime at 5106-11 feet was passed up. This project is credited with having logged top of K-M-A lime at 4770 feet.

Promise of a new oil horizon between the Strawn and Ellenberger in the Panther pool, Archer County, was discounted when Blackwell Oil & Gas Company and Helmerich & Payne, Inc.'s Wilson-McCrory 2, northwest offset to the Strawn discovery, tested dry in saturated lime at 4348-57 feet. Core samples registered favorable for oil production, and a string of 5-3/16-inch pipe was cemented at 4347 feet to exclude water found in the upper Strawn. The partnership's Wilson 2, which showed for a small oil producer early last May in Ellenberger at 5105-16 feet, has not been placed on production.

K-M-A is maintaining its position as the most active drilling center by a wide margin, having 218 operations listed on the current field report. The area has 90 tests that have reached the final casing point, else are in process of completion or awaiting poten-

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
L. R. Hagy-Harrington-March, Coffee 1	¶26.8	2840
Pickens 1	¶24.8	2944
Gray County—		
Gulf, Saunders 9-A	441	3029
Magnolia, Haggard 11	194	3285
Kewanee Oil Co., McKinney-Barrett 8	591	3280
Texas Co., Saunders 28	371	2780
Hutchinson County—		
Allison & Sturdevant, Christian 1	584	3099
Drilling & Explor. Co., Pond 6	571	3095
E. E. Watkins 20	568	3011
Gulf & Panhandle, Dial-Perkins 81	426	3090
Kewanee Oil Co., Lewis 35	562	3025
J. R. Phillips et al, Ware 1	421	3050
Phillips, Jordan 7	160	3088
Stanolind, Haile 10-B	326	3081
Terry 10	162	2978
Stansylvania Oil Co., Stansbury 6	398	3064
Potter County—		
Panhandle-Eastern, McBride 1-104	¶47.6	1976

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (K-M-A)—		
Chapman-McFarlin, Ferguson 7, blk 3	1136	3869
Archer County—		
Burns-Omohundro, Edwards 1, blk 44	*	4822
Burns et al, Garvey 1, sec 1870	*	990
Hawkins et al, Pace 9, blk 112	*	1188
Hines-Hancock, Hammond 1, lot 37	*	3763
Westmount Oil Co., Dempsey 7, blk 10	*	4205
Clay County—		
Bridwell Oil Co., Saner-Lomax 2-B	*	1235
Cooke County—		
Kewanee Oil Co., Hyman-Lanier 27-A	25	1221
Schermerhorn, Kessler 16, blk 5	30	1345
Jack County—		
Brazos River Gas Co., Box 6	25	2985
Gilmore et al, Peck 1, sec 3304	*	577
Mar-Tex Oil Co., Kuykendall 1-C	124	3096
Moss et al, Lowe-Eatherly 5	65	3109
Nelson Oil Synd., Henderson 2-A	¶5	2964
Reeder et al, Knox 1, sec 1	*	441
Rowan-Nichols Oil Co., Matlock 2	338	3123
Throckmorton County—		
Burlingame & Mayhon, Robinson 1, sec 1650	*	452
Wichita County (K-M-A)—		
C. J. Bohner Oil Corp., First Nat'l Co. 3-B, lot 6	808	3855
Bolin et al, D. R. Preston 1, sec 20	936	4692
Chapman-McFarlin, Sparks-Mayfield 5	672	3904
Continental, R. L. Kempner 1-B, blk 18	328	3833
Deep Oil Dev. Co., Kempner 1, blk 18	1040	3905
Continental, Waggoner Bros. 1-B-"A", sec 11	256	3800
Lewis Prod. Co., Mangold 3, blk 36	1600	3848
W. P. Lincoln-Leo Moore, Munger 1-A, lot 11	552	3864
Munger (R&G Drl.) 2-A, lot 9	544	3890
Mitchell Oil Co., Mitchell 1-C, lot 11	848	3868
Mitchell 2-C, lot 11	744	3866
Murray & Griffey, Pace 2	512	3900
Omohundro et al, Hodges 5	544	3961
Hooks 5-B	768	3907
Hooks 6-B	872	3865
Sinclair Prairie, Martin 1, sec 12	50	3818
Worth Oil Co., Logan 1, blk 21	300	3780
Logan 1-A, blk 21	500	3832
Wichita County—		
Bolin-Whittington, Waggoner Bros. 4-A, sec 21	23	915
Gutzler et al, Jenne 1, lot 1	*	350
Pois & Schulz, Foster-Allen 18-J	*	1268
Wilbarger County—		
Paradise Oil Co., Waggoner Est. 2-B, sec 30	120	1544
Young County—		
Crenshaw et al, Dwight 1, sec 1442	*	4435
Hickok Prod. & Dev. Co.-Reynolds, Martin 2	14	4478
Kleiner et al, Langston 61, sec 1490	10	561
Ohio Fuel Supply Co., Stegall 1, sec 1973	600	4028
Rathke Oil Co.-Graham O&G Co., G. Morgan 1, sec 1171	10	4365
R. H. Vise et al, King 2, sec 447	*	337
Morrison 1, sec 646	1800	3956
Wise & Porterfield, Cullers 6	20	600

*Failures; †Junked; ¶Million cu. ft. gas.

tial gauge and pipe line connection. There are 38 tests classified as drilling with rotary between casing points, and surface pipe has been landed for 15 additional projects. Derricks and rigs account for 15 listings, while 4 tests are idle. Total of 56 locations credited to the field represents a sharp decline since a peak of 80 was reached late in May. This drop reveals that operators are proceeding with development programs. For two consecutive weeks scouts have reported 19 new tests per week.

Reduced proration allowable per well is enabling operators to use smaller nitro shots in completing wells that are not capable of natural flow. Large potentials are no longer sought, and shooting is deferred whenever possible. This policy has caused a drop in the initial production average. The Continental Oil Company is among the active operators that are postponing artificial stimulation of production when new completions indicate a natural flow through tubing choke. This concern's Waggoner Bros. 5-B-C, NEc Lot 27, H. George Survey, A-454, is a late completion, having flowed 44 barrels of 41 gravity oil on 3-hour potential gauge through ¾-inch tubing choke from sand at 3770-3812 feet, with the hole bottomed in shale at 3814 feet.

West trend of production for the Kadane sand sector has been advanced by outposts. Fain-McGaha Oil Corporation's Griffin 1-B, near northeast corner Block 2, Wm. Spillers Survey A-257, flowed by heads after registering a high structural position. Production is from broken sand at 3702-23 feet, solid sand at 3723-49 feet, followed by saturated lime to 3752 feet. Top of lime was called at 3658 feet. Shell Petroleum Corporation and Phillips Petroleum Company's Reilly 1, west portion of the F. Jordan Survey, A-167, 1¾ miles west of the above producer, flowed 55 barrels pipe line oil in 4 hours through open tubing after a long cleanout job. This outpost was plugged back from water at 3888 feet to 3852 feet, and was shot with nitro early last month at 3835-51 feet. Top of lime was logged at 3746 feet.

Wildcat Operations

Wildcatting is somewhat active in North Texas counties that have been generally passed up in the past. Childress County has two projects, including McMillan Bros. and Humble Oil & Refining Company's C. W. Furr 1, 2 miles south of Kirkland, which topped the dolomite lime at 2590 feet, and was drilling at 2610 feet. W. A. Aggers & J. P. Stewart's Schluter-Loter 1, 1 mile north of Kirkland, halted to 1966 feet to complete title work. Roeser & Pendleton, Inc. and Indian Territory Illuminating Oil Company's Beavers 1, 1½ miles southeast of Truscott, Knox County's only active test, was drilling at 1190 feet. In Hall County, English Oil & Production Company's J. M. Eudy 1, D&P Section 171, Block S-5, fulfilled depth contract and is awaiting orders at 3518 feet. Wynne Drilling Company and Ed. Smith's Wishon 1, NEc of J. M. Clay Survey, projected 5100-foot test for Foard County, was drilling at 3100 feet.

Baylor County's single active deep test involves the Wilcox Oil & Gas Company's W. H. Portwood 1, Section 3144, TE&L Company Survey, which was drilling at 4757 feet, and is slated to go to 6000 feet. Top of K-M-A lime was called at 3465 feet, and first Caddo at 4735 feet.

Magnolia Petroleum Company's Chris Schmoker 43, 3 miles southwest of Burkburnett and offsetting shallow production, logged top of Ellenberger at 3010 feet, and no shows were recorded in drilling beyond 3665 feet.

Potential rating of Sinclair Prairie Oil Company's J. M. Best 1, which opened a Strawn (Deese) sandy-lime pool in northeastern Cooke County near the Walnut Bend sector of the Red River early last month, has been raised since the installation of tubing. Best 1 flowed 93 barrels of 35 gravity oil in one hour through open 2½-inch tubing, and flowed 286 barrels oil in three hours through chokes, ranging from 1 to ¼-inch. Production is from 4887-4900 feet, and will remain shut-in until Sinclair Refining Company, pipe line division, completes a 11-mile 4-inch line from the well to a tank car rack on the Santa Fe Railroad at Gainesville.

Jones County well flows from lower sand level

Abilene, Texas.—Flowing production from a lower oil horizon was developed by Humble Oil & Refining Company's Riley Horton 1, NEc T&P Section 40, Block 18, situated 1¾ miles east of the Noodle Creek field, Jones County, and near the town of Noodle. Horton 1 passed up half bailer of oil per hour show at 2418-25 feet, and was carrying hole full of water from 2787-2815 feet when the second oil pay was tapped at 2930-32 feet. The well began flowing by heads when 7-inch pipe was lowered to 2910 feet. The flow was killed to cement pipe and try for completion. The company's Irwin 1, northeast diagonal offset to the new well, was completed last April pumping 92 barrels of oil and 25 barrels of water initial from sandy-lime at 2550-54 feet after plugging back from 2567 feet. The latter correlates favorably with the upper pay in the Noodle Creek field, which was the first strike for the county, but intermediate dry holes indicate that the above two wells may be on a separate geological feature.

Preliminary production tests give Daube Bros. and Forest Development Corporation's A. C. Bennett 1, C NE NE H&TC Section 51, Block 2, establishes a new high-gravity oil discovery for the county. Situated 3 miles southwest of Rotan, Bennett 1 flowed 16 barrels hourly for 3 hours on ⅜-inch tubing choke, and is slated for acid treatment. Production is from sandy-lime at 3686-93½ feet after plugging off water encountered in drilling to 3699 feet, with an elevation of 2018 feet.

State board auctions 150 tracts in West Texas

The state board for lease of University Lands last week auctioned nearly 150 tracts in West Texas. The lands were located in Andrews, Crane, Crockett and Reagan counties.

Not all of the tracts were sold, as bidders refused to make offers in some cases, and in a few instances bids were rejected by the State.

East Texas producing properties change hands

Kilgore, Texas.—Hurricane Petroleum Corporation, which is operating its refineries at Arp and Overton, has sold its producing properties in the East Texas field, involving 6 leases with 32 wells on approximately 150 acres, to R. G. Trippett et al, for a consideration amounting to about $1,232,000. Trippett is a former official of General American Oil Company, and recently re-entered the field as a producer through the purchase of 25 wells from the latter concern.

Olsan Bros., Inc., has purchased Mar-Tex Oil Company's Wolford 40-acre lease, Smith County section of the Joiner area, with 18 wells, for a reported consideration of $375,000.

EAST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
British-American, Eaton 6 (25-ac)	5500	3740
Gen'l American Oil Co., Thompson 15 (7.19-ac)	7000	3750
Gulf, Wiley 17 (100-ac)	2600	3703
Humble, Barton 10 (62¼-ac)	7500	3754
Magnolia, Perkins 11 (76.28-ac)	2500	3655
Ohio, Moores 38 (201.4-ac)	2000	3666
Overton Ref. Co., Clay Bros. 13 (65.26-ac)	500	3583
Royal Pet. Corp., Alexander 3 (89½-ac)	*	3735
Kilgore Area—		
Carroll et al, Sharp 2, blk 154	500	3557
Davis & Hart, Elder 8-B (21-ac)	120	3554
C. A. Everts Drl. Co., Laird 10 (11½-ac)	3500	3590
Gulf, Andrews 10 (63.23-ac)	8300	3600
Jones & Jones, Brock 3 (6½-ac)	7200	3638
Magnolia, Wills 17 (91.17-ac)	3000	3652
Midfield Oil Co.-H. G. Rogers, Mt. Moriah Cemetery 1, (2.1-ac)	4000	3765
Rudco O&G Co., L. B. Morse 4 (5½-ac)	5500	3622
Shell, Elder 11-A (51.51-ac)	5800	3606
Elder 48 (196.05-ac)	8400	3670
Watson 77 (385.2-ac)	8500	3637
Shulman et al, Smith-Stanolind 3 (57-ac)	1500	3702
Terte et al, Benson 6 (8-ac)	2500	3623
Longview Area—		
Atlantic-Stanolind, Fishburn 19 (112.45-ac)	10,200	3570
L. S. Flannery, York 6 (20.2-ac)	7800	3580
Hester & Graham, Brannon-McQueen 7-B (15-ac)	1800	3575
Johnston et al, Fee 7 (26.3-ac)	*	3759
Lester-Duffield, Moore-Shell 9 (66.2-ac)	6500	3554
Magnolia, Free 34 (169.3-ac)	6000	3652
Spear et al, McGrede 3 (10-ac)	8000	3649
Stanolind, Davis 16-A (80.68-ac)	6500	3569
Skipper-Garner 5 (31.32-ac)	2000	3530
Smith 12-A, (60.15-ac)	6000	3586
Texfield Oil Co., O'Byrne 7 (26.48-ac)	600	3726
Washington Oil Corp., Cobb 9 (23.17-ac)	9000	3550
Marion County (Rodessa)—		
Killingsworth et al, McReynolds 1, A.D.L.S. Coy sur	336	6048
Shell, Henderson C-1, Bennington sur	132	6002
Anderson County (Long Lake)—		
F-H-E Oil Co., Morrow 2	150	5380
Hunt Oil Co., Broyles-Wolverton 1	¶115	5387
Cherokee County (Boggy Creek)—		
J. A. Sanders-Fensland Oil Co., Elliott Clarke 1 (5-ac)	49	3603
Henderson County (Flag Lake)—		
Richards & Holloway, Tarkington Bros. 1 (15-ac)	172	3062
Houston County (Kittrell)—		
Teague Oil Co., Huffman 1-A	139	2043
Titus County (Talco)—		
Humble, Riddle Bros., 6 (79.67-ac)	290	4293
Henderson County—		
W. S. McGee et al, O. D. Mikeal 1 (76½-ac)	*	3235
Red River County—		
Texas Trading Co., Southern Pine 2	*	2155

*Failures; †Junked; ¶Million cu. ft. gas.

Southwest Texas Fields

Woodsboro, Refugio County, apparently has a producer.

Valley Vicksburg search has several test at critical stage.

Frio County wildcat probably will make an oil producer.

Corpus Christi.—Refugio County had its first oil field in years in prospect as I. J. Allen's second test on the Woodsboro prospect showed for at least a distillate producer from sand section at 5282-93 feet. On a drill-stem test of four minutes duration, the test recovered 15 feet of mud and gasoline and rocked up 400 pounds pressure through ¼-inch and ½-inch chokes. The test, however, was coring below 5500 feet, directed to the sands productive in the Refugio and Tomoconnor fields.

This well is located 3300 feet west of the southwest corner of Section 46, Bonnie View subdivision, and is four miles southwest of Woodsboro. It is 7600 feet northwest of Mrs. Birdie D. Rooke 1 and is on a block of 3600 acres held by Allen and associates. It is on a geophysical prospect which indicates another pool separate from the Refugio field to the north and east.

At the same time, Jackson County's second pool of the year seemed to be certain with Magnolia Petroleum Company completing A. West Ranch 2. The well logged sandy shale with gas odor at 5069-89 feet, gas sand at 5089-93 feet and salt water sand below this level. The test was carried to 7217 feet and attempted completion at several levels above that depth, but showed salt water. Earlier in the week casing was perforated at 5085½-90 feet and the test flowed dry gas through choke, showing 1800 pounds tubing and 1975 pounds casing pressure. Salt water broke in, apparently due to bad cement job, and the well was squeezed. Perforations will again be made for completion in this same zone. The well is in the R. Musquez Grant, 3600 feet west of the Lavaca River and 8200 feet northeast of West 1.

Coast Line Oil Corporation again tested salt water in State 1, deep test in Red Fish Bay, southeast of Aransas Pass, Nueces County. The most recent test was through perforations at 8565-73 feet. It was squeezed at this level and at 8520-25 feet to cut off the water for further tests.

Magnolia Petroleum Company was washing over drill pipe stuck at 6390 feet in Valades Heirs 1, La Anamina Sola Grant, 11 miles southwest of Ben Bolt in Jim Wells County. The test attempted to blow out from the Vicksburg at this depth and drill stem stuck in the hole. The well will be carried ahead as soon as the hole is cleared.

This company's recently discovered Vicksburg sand field, East Premont, had an extension of 1320 feet to the north in the making with Seeligson 9, which on drill-stem test of the 5-foot section below casing to 6590 feet flowed pipe line oil in 12 minutes and developed 200 pounds working pressure. When the pipe was pulled, 90 feet of salt water was recovered with the oil and the hole was plugged back to 6589 feet where completion was being again effected.

Mills Bennett Production Corporation's W. R. Perkins 1, nearly two miles northeast of the Vicksburg production in the Alice field, Jim Wells County, cored a sand cap at 5319-20 feet and oil sand at 5320-23½ feet. No further information has been released, but it is understood that the well was carried deeper in the pay and that a drill-stem test had been run and showed for a producer. This, however, could not be confirmed.

Callaway, Mathews and Pan American Production Corporation's Cook 1 was drilled to 5500 feet, ran electric tester which indicated oil sand in Vicksburg at 5304-18 feet and casing was landed at 5340 feet. It will test this sand, then the 5100-foot zone. It is an extension of 4500 feet to the field. The well cored gas sand at 5132-55 feet, oil sand at 5155-61 feet, shale section at 5161-66 feet and distillate sand at 5166-82 feet. Drill-stem test at 5161-68 feet recovered 5 gallons of 47.3 gravity distillate, 20 feet of oil-cut mud and 325 pounds pressure in 5 minutes.

Vicksburg sand trend tests at critical stages

Mission.—South Texas' Vicksburg sand trend had several wells on the prospective producing sands or were at critical depths late in the week. Their outcome will have a most important bearing on the possibilities of this producing zone, now looming as one of the key producing factors of South Texas.

Wheelock & Collins' F. B. Guerra 1-A, third test to be drilled on the La Reforma prospect in eastern Starr County, was coring below 6600 feet and was in the high-pressure-gas sand which caused the two preceding wells to be unsuccessfully completed. A string of 7-inch casing had been set at 6582 feet and completion is to be effected through 5-inch which is to be set after the complete Vicksburg zone is cored.

Also in the Rio Grande Valley, but in Hidalgo County, Phillips Petroleum Company's Flores 1, Share 350, and north side of the Samfordyce field, was around 4500 feet and core drilling in the Vicksburg zone.

Still farther east, Union Sulphur Company was close to 7500 feet in American Rio Grande Land & Irrigation Company 11, Mercedes pool, the test being contracted to 9100 feet or the Vicksburg.

Humble Oil & Refining Company is preparing to move in for its second test on the Kelsey Bass ranch, southeastern Jim Hogg County, where the concern has a 30,300-acre solid block. Bass 1 was abandoned at 7017 feet after several showings and is moving 30,000 feet east and south to Bass 2, 1399 feet out of the southeast corner of the ranch.

Standard Oil Company of Texas was going ahead below production string of 7-inch casing set at 3487 feet in D. Garcia 1, in the Concepcion Grant of southeastern Duval County. It, too, is on a key geophysical prospect and is projected through the Vicksburg and Jackson.

Fishing job delays test of Frio County prospective well

San Antonio.—Humble Oil & Refining Company's prospect northeast of Pearsall, Frio County, apparently is going to pay off with its first test. F. L. Thomson, Jr., and D. M. Thomson's San Antonio Joint Stock Land Bank 1, 6 miles northeast of Pearsall, cored and drilled Edwards limestone at 5632-86 feet, apparently all saturated, and was testing.

The test was tied up with a fishing job July 1 after drill stem test twisted off when hole was being conditioned to run a drill-stem test.

The test is 150 feet from the southwest line and 150 feet from the east line of GBCNRWC Survey 1, and is a direct offset in 3 directions to the Humble Oil & Refining Company's big block. Humble assisted in the drilling of the well.

It topped the Austin chalk at 4943 feet, Eagleford shale at 5295 feet, Buda limestone at 5365 feet, Del Rio clay at 5451 feet, Georgetown limestone at 5523 feet and Edwards limestone at 5632 feet. It has an elevation of 600 feet, derrick floor.

Completion as an Edwards limestone

SOUTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CORPUS CHRISTI DISTRICT		
Bee County—		
McBride, Plummer A-3, Plummer..	90	3037
Hidalgo County—		
Weekly Oil Corp., George 6, Samfordyce	450	2880
Jim Wells County—		
Conroe Drilling Co., Lindsay & Reed 2, Alice	*	5605
Howell, Lindsay & Reed 7, Alice..	650	5305
Lindsay & Reed 12, Alice	600	5315
Humble Oil & Ref. Co., Tarrant 1, J. Poitevent sur No. 205	*	6570
Live Oak County—		
Simmons Oil Co., Clara McGriff 3-B, Oakville	300	2135
Nueces County—		
Conroe Drilling Co., Bliss 9, Saxet.	800	6739
Seaboard Oil Corp., James Luby 24, Luby	500	5071
James Luby 33, Luby	550	4366
John Luby 13, Luby	450	4370
Southern Minerals Corp., King 9, Bentonville-King	500	4023
Sultex Oil Co., Isensee 2, Saxet....	*	7350
Western Gulf Pet. Corp., Isensee 5, Saxet	350	6459
Isensee 7, Saxet	600	6931
Refugio County—		
Copano Oil Co., O'Connor 2, Tomoconnor	1250	5924
Houston Oil of Tex., Pratt-Hewitt-Rooke 46, Refugio	750	6205
Morgan, Mitchell 1, Refugio ....¶5 & 75		7120
Nordan, O'Connor 8-B, Tomoconnor	1250	5915
Nordan, O'Connor 14-B, Tomoconnor	1350	5923
Quintana Pet. Corp., Heard 3, Tomoconnor	2600	5940
O'Connor 29-C, Tomoconnor	3000	5930
Union Prod. Co., Lambert 73, Tomoconnor	450	5882
San Patricio County—		
Plymouth Oil Co., Cole 1-F, East White Point	600	5658
Victoria County—		
Sun Oil, Coffey 9, Heyser	425	6041

*Failures; †Junked; ¶Million cu. ft. gas.

producer will boom this trend for more deep exploration. The Pearsall field, Frio County, but southwest of the Pearsall townsite, produced from the Taylor marl, Austin chalk, Buda limestone and Edwards limestone, ranging from 3900 to 6300 feet, but the production was unsatisfactory. No other production of consequence has been discovered along this trend.

Beeville.—James B. Chew and Glenn H. McCarthy cored almost solid sand with gas odor from 6101-84 feet in C. L. Cartwright 1, wildcat 2 miles southwest of Largarto in Live Oak County. This sand was in the Cockfield zone and the well is being drilled ahead to its 6500-foot contract in the Yegua, following which it likely will plug back for a series of tests.

Simmons Oil & Gas Company again placed the Oakville field, northeast of Three Rivers, Live Oak County, in position to receive considerable development as a result of its recent completion, Clara McGriff 3-B. The well definitely established oil production for the field about 200 feet below the top of the Hockleyensis zone in a sand series corresponding to the Chrenoskey zone of the lower Mirando district.

Company, Well and Location	Init. Prod. Bbls.	Depth
LAREDO DISTRICT		
Duval County—		
Benedum-Trees, Puig 16, North Sweden	625	4765
Continental Oil, Sevier 24-A, Driscoll	420	3346
Cox & Hamon, Cuellar-Hagan 6, Hoffman	151	2810
Government Wells Oil, Lundell 28, Lundell	97	1508
Hiawatha Oil & Gas, Herberger 5, Sweden	*	6109
Parr 13, North Sweden	650	4725
Humble Oil & Ref., Henderson 1, J. Poitevent sur	*	3060
Magnolia Pet. Co., Duval County Ranch Co. 2 (291), Casa Blanca	75	1207
Duval County Ranch Co. 20 (203), Piedra Lumbre	80	2062
Well Estate 5, Hoffman	250	2681
McBride, Murphy 1, sec 120, 1 mi w Labbe	*	2976
Porter, Fitzsimmons 2, Fitzsimmons	600	4300
Republic Prod. Co., Buoy 1-A, North Sweden	500	3885
Standard Oil of Kansas, Walstead Est. 8, North Sweden	125	3925
Jim Hogg County—		
Humble Oil & Ref., Kelsey Bass 1, San Rafael gr	*	7017
McMullen County—		
Marion Prod. Co. of SA, Lark 4, Jacob	15	1067
Shumway, Shiner Ranch 13, T. T. R. R. sur	*	1800
Winebrenner, Teal 3, Wm. Kuykendall sur	*	550
Webb County—		
Houser, Garcia-Villareal 1, S.E.L. sur 720	*	2524
Zapata County—		
Nash, Haynes 29, Comitas	50	1118
Transwestern, Treviño 20-A Escobas	25	1285
SAN ANTONIO DISTRICT		
Bastrop County—		
Walden O&G Co., Graham 1, Andrew Mays sur	*	2714
Bexar County—		
Carver-Reed-Hair, Kelso 1-A, Alta Vista	*	....
Philtop O&G., Patton 2, Mission	*	585
Caldwell County—		
Millican, Merriwether 1, Salt Flats	65	2732
Richardson, Schawe 1, T. Maxwell sur	*	905
Shield, O'Banion 2, Pablo Martinez	*	1462
Tinkle, Blackwell 2, Burdette Wells	*	1980
Guadalupe County—		
Kallison, Kelly 1, Nash Creek	*	2593
Travis County—		
Texas Empire Trading Co., Jourdan 1, San Diego Del Valle gr	*	710
Williamson County—		
Aldridge, Kroschewsky 1, S. Parrass sur	*	1123

*Failures; †Junked; ¶Million cu. ft. gas.

Texas Gulf Coast

Fairbanks northeast outpost yields salt water. Performance of test at Bammel is disappointing. Gulf completes well in new sand at Cleveland.

Houston.—Union Producing Company's Goodykoontz 1, 7000 feet northeast of production at Fairbanks, W. S. Powell Survey, Harris County, looked disappointing last week when a production test showed salt water. The well was drilled to 7617 feet in salt water after logging the top of the sand at 7593 feet. Five and three quarter-inch casing set at 7500 feet was perforated from 7472 to 7480 feet with 40 shots; 2½-inch tubing was hung at 7470 feet. The well was washed in and it showed salt water and no oil. The perforations have been squeezed with cement for another production test.

Skelly Oil Company made its first location at Fairbanks field last week. Emmett 1 is an east offset to Winsor Oil Company's Parker 1 in the J. Waugh Survey.

At Bammel in Harris County, H. M. Harrell's Pollev 1, C. G. McLean Survey, looks as if it will continue to produce salt water in large quantities. After making a production test at 6257 to 6261 feet and coming in for two barrels of pipe line oil per hour the well started making salt water. The hole was jetted with gas under a 300 pound pressure and was put on a 3/16-inch choke. It made an estimated 7½ barrels of fluid per hour, 40 percent salt water. Tubing and casing pressures were 700 pounds.

To Test Eureka Flank

On the southwest side of Eureka, Harris County, Tide Water Associated Oil Company will test L. Lackner 1, J. Reinerman Survey, the coming week. The well was drilled to 7800 feet in salt water sand after topping the water formation at 7762 feet. Casing has been set.

South of Deep Water, Harris County, Jack Frazier's Houston Deep Water Land Company 1, T. Earle Survey, was coring in shale at 6300 feet at the end of the week after coring from 5649 to 5803 feet. All broken formations in the cores showed salt water.

The second well at Clam Lake, Jefferson County, which established the producing field as a salt dome recently, showed salt water on a drill-stem test in the upper formations last week. Shell Petroleum Corporation's McFaddin 2, S. A. Pace Survey, was plugged back to 5659 feet from 8198 feet in salt, after salt was topped at 8156 feet. Five-inch casing set at 5659 feet was perforated with 12 shots from 5552 to 5555 feet. The 11-minute drill-stem test showed four barrels of gas cut mud with a slight show of oil, 10 barrels of salt water and sand, half barrel of salt water and 65 feet of sand. Cement retainer has been set at 5545 feet. Another drill-stem test will be made.

The second test for the Cheek field, Jefferson County, will be Shell Petroleum Corporation's Pleasant 1, south offset to the discovery well. It is 466 feet west of the most easterly east line and 466 feet south of the most southerly north line of a 138.22-acre tract in the C. Hillebrand Survey. The discovery well at Cheek was Glenn H. McCarthy's Broussard Trust 1. It came in flowing 125 barrels of oil daily and over 100 barrels of salt water. Since completion the well has made over 35,000 barrels of oil.

The Texas Company is completing its first well at West Beaumont field, Jefferson County. Pansey Yount 3, A. Houston Survey, logged sands showing oil from 5861 to 5868 feet and 5½-inch casing was set at 5858 feet. It had made 78 barrels in seven hours through a 3/16-inch choke last week. Tubing pressure was 590 pounds and casing pressure was 1110 pounds.

Completes In New Sand

Gulf Oil Corporation has completed Kirby C-21, Cleveland field, J. Pleasant Survey, in a new sand. The well made 47 barrels of distillate daily through a quarter-inch choke from 9100 feet. Tubing pressure was 2600 pounds and casing pressure was 2750 pounds. The gas/oil ratio was 104,600 to 1.

On the southeast side of Hardin field, Liberty County, Glenn H. McCarthy is completing S. Oliver 1, H. B. Johnston Survey. In 28½ hours it made 202 barrels of oil through a 9/64-inch choke. Tubing pressure was 1700 pounds and casing pressure was 2425 pounds. Oliver 1, drilled to 7988 feet, was perforated with 40 shots from 7630 to 7648 feet. Four other wells at Hardin are down to the sand and have set casing for production tests the coming week.

North of Citrus Grove, Matagorda County, Sun Oil Company finally abandoned Robbins 1, C. H. Vandeveer Survey, at 10,160 feet. A series of tests made up the hole showed salt water. The last test made was at 3890 feet.

In the Spanish Camp area, Wharton County, Albert Plummer's Sorrell 2, 660 feet northeast of Sorrell 1, S. F. Austin Survey, is preparing to make a drill-stem test at 3730 feet after logging sands with a fair cut from 3729 to 3730 feet. Spanish Camp has been producing gas only.

Humble Oil & Refining Company abandoned Hudgins 1, a core test, at Spanish Camp last week at 7500 feet. A gas sand was logged at 2900 feet. The company has made location for Duncan 1 in the area. It is 7500 feet southwest of the northeast line and 600 feet southeast of the northwest line of the D. Wade Survey.

At Hitchcock, Galveston County, N. W. Hunter recovered salt water and oil on a production test last week in Argo

Oil Company 1, A. Burke Survey. Casing was perforated with 24 shots from 5146 to 5152 feet and the well made 80 percent salt water. It was killed and again perforated from 5156 to 5159 feet with 50 shots.

Texas permits total 318

Permits for drilling 318 new wells in Texas were approved by the Texas Railroad Commission last week. This was 166 more than were allowed the week before.

East Texas accounted for 60 of these permits. There were 29 for wells in Gregg County, 23 in Rusk County, five in Smith County and three in Upshur County. East Central Texas operators obtained 15 permits.

There were 71 locations from the Gulf Coast, with 18 in Harris County. Southwest Texas reported 48 locations with 18 in Duval County and 12 in Jim Wells County.

West Texas listed 47 permits with 17 in Ector County, and there were 27 locations from West Central Texas including 19 in Shackelford County.

North Texas reported 31 locations of which 28 were for wells in Wichita County and 19 for wells in the Panhandle.

Postpone Hardin hearing

The Texas Railroad Commission last week postponed indefinitely its hearing on the Hardin field, Liberty County. The hearing had been called to determine whether four wells operated by Strake and Sun were within the Hardin field, or should be considered as producing from a separate field.

George W. Strake requested that the hearing be delayed for a minimum of 60 days in order that further geological data may be assembled and that certain tests be made on the wells. He pointed out that the new wells are located south of a east-west fault which Humble engineers had testified marked the south boundary of the Hardin field. The wells in question are producing with a gas/oil ratio averaging 31000/1. Commission engineers were making tests to determine whether the fluid produced is in a gaseous state in the reservoir, and whether these wells should therefore be treated and prorated as gas wells rather than oil wells.

Cabot is denied petition to acquire Producers Gas

Petition of the Cabot Gas Corporation for authority to acquire all or not less than 85 percent of the common capital stock of the Producers Gas Company was denied last week by the New York public service commission on the ground that the proposal was not in the public interest.

The Cabot company proposed to pay $133.33 per share for each of the 6000 common shares of the Producers company outstanding, or a total of $800,000. Par value of the stock is $50 a share, or $300,000 for that outstanding. Godfrey L. Cabot, Inc., parent company of the Cabot Gas Corporation, supplies most of the natural gas distributed by Producers Gas Company, the latter concern producing only a small amount of its needs.

South Louisiana

Bird Island prospect wildcat shows 27 gravity oil. Convent salt dome test logs gas sand; blows out. More oil shows are cored at West Lake Verrett.

Lake Charles.—Bird Island prospect, Plaquemines Parish, may be converted into an oil field by Gulf Oil Corporation's Grand Prairie Levee District 1-A, Section 6-20s-19e. Last week the wildcat made a drill stem test and recovered 27.2 gravity oil at 6151 feet. An electrical logging device is being run to determine further operations. Sandy shale with oil shows was cored from 6133 to 6141 feet and sand was cored from 6141 to 6147 feet. From 6147 to 6151 feet, sand and shale which showed oil were logged. When a drill stem test was attempted from 6133 to 6151 feet, with the seat set at 6120 feet, it slipped to 6132 feet. But in 10 minutes the operators recovered 6 joints of sand, shale, mud and oil and 5 gallons of 27.2 gravity oil. No pressure was shown, but the well had a slight blow of gas.

New Field Indicated

A gas sand was logged in Continental Oil Company's Realty Operators 1 at Convent salt dome, Section 17-12s-17e, St. James Parish, and the well blew out. The drill pipe was stuck and at the end of the week the crew was backing off the pipe. This wildcat indicates a new producing area for South Louisiana. The company is drilling another wildcat on this prospect on a farm-out of Shell Petroleum Corporation.

In the West Lake Verrett area, St. Martin Parish, Shell Petroleum Corporation was drilling in shale at 9289 feet last week after coring more broken shows of oil. A core from 8935 to 8946 feet, sand and shale, showed oil, but the bottom portion of the core had a salty taste. From 8948 to 8954 feet was sand showing oil.

Also in St. Martin Parish, but at Henderson salt dome, The Texas Company's eleventh try on the St. Martin Land Company's property showed oil and salt water on a drill stem test. A sand and shale formation cored from 7152 to 7184 feet showed oil, and from 7261 to 7270 feet sand showing oil was logged. The drill stem test, made from 7300 to 7316 feet, recovered 8 stands of mud, 6 stands of salt water with a show of oil and gas in 7 minutes through ¼-inch chokes. The hole is now down to 7367 feet in water sand.

World's Second Deepest

The second deepest well in the world is Fohs Oil Company's State Bay Baptiste 1, south of Lirette field, Terrebonne Parish, last week down to 13,347 feet and running an electrical logging device.

Fohs Oil Company now holds the distinction of having the second and third deepest wells in the world and the deepest flowing well in the world. The company's Buckley-Bourg 1 at

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barbers Hill—		
Atlantic, Traverse 2	453	5667
Cleveland—		
Gulf, Kirby 21-C, dr to 10,075 ft, pb and comp.	42	9100
Damon Mound—		
Nichols McCalb, Damon 2	*	649
Dickinson—		
Ben Oil Co., Sam Levine 2	449	8100
Humble, Peters 3	*	8952
Pure, Levine 5	667	8100
Eureka —		
Alamo and Means-McGhee, Lackner 4	686	7729
Jack Frazier, Varner Realty 3	672	7762
Fairbanks—		
Amerada-Stanolind, Sebek 1	430	6845
Friendswood—		
Humble, Cottingham 3	568	6045
Owens 1	611	6049
Goose Creek —		
N. M. Dunman, Smith 1	37	844
Hardin—		
Gulf, Barfield 3-A	*	7661
Hastings —		
E. M. Hailey, Blummer 2	600	6104
Stanolind, Avitts A-5	491	6080
Paul 24	623	5705
Humble—		
Wilson Oil Co., House 12	218	3662
Manvel—		
Texas Co., Belcher A-19	557	5674
Markham—		
Cron and Gracey, Carlson 1	*	6436
Palacios—		
Bennett Prod. Co., Foley 1	*	9316
Pierce Junction —		
Superior Oil Corp., Settegast 6-B	192	4547
Seabreeze—		
Sun, White C-1	*	9056
Silsbee—		
Republic, Frazier 1	300	6910
Spanish Camp—		
Humble, Hudgins 1	*	7500
Tomball—		
Humble, Keystone 1	316	5583
Mathews 1-B	523	5580
Matagorda County —		
Sun, Robbins 1, n of Citrus Grove, C. H. Vandeveer sur	*	10,160
Waller County—		
David B. McDaniels, Dinkins 1, Spring Creek area, L. Pearsall sur	*	6500

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Charenton—		
Pan American, Lawes Realty 1	118	2010
East Hackberry—		
Union Sulphur, Doiron 10	500	6236
Jennings—		
Frio Pet. Corp., Gulf Fee 1	350	7092
Lake Long—		
Fohs Oil Co., State 4	60	10,419
Lockport—		
Continental, Moss 1	138	5324
Sorrento—		
Pan American, United Lands 11	¶1	1293
Sulphur—		
Union Sulphur, Fee 863	543	3484
Villa Platte—		
Amerada, Fournier 1	640	9046
Continental, Vidrine-Deville 1	473	9100
Calcasieu Parish—		
Sun, Lutcher Moore 1, nw of Starks, 1-8s-13w	*	9480
Terrebonne Parish—		
Fohs, Buckley Bourg 1, Dulac area, 77-19s-17e	72	13,266

*Failures; †Junked; ¶Million cu. ft. gas.

West Dulac, Terrebonne Parish, was recompleted last week and definitely established a new oil field in South Louisiana. It is flowing 3 barrels of 47 gravity distillate per hour through a 12/64-inch choke from 13,254 to 13,266 feet. Tubing pressure is 4100 pounds. This well is 86 feet deeper than the previous record holder for producers. When State Bay Baptiste 1 was drilled to 13,347 feet it became the second deepest hole and Buckley Bourg 1 (depth 13,333 feet), went to third position. A California well, bottomed at 15,004 feet, is the world's deepest.

Humble Oil & Refining Company will drill another deep well at Lirette field, Terrebonne Parish. Location was staked for R. Verrett 1, 650 feet north and 660 feet east SWc NE SW Section 32-19s-19e.

To Test West Gueydan

On the West Gueydan prospect, Vermilion Parish, Magnolia Petroleum Company's Ferguson 1, Section 5-12s-2w, last week on a drill stem test at 7150 feet showed gas and distillate. Seven-inch casing was set at 7130 feet, and at the end of the week the crew was drilling cement plugs for a production test.

Union Sulphur Company made location in the Fenton area, Jefferson Davis Parish, last week where Louisiana Crusader Oil Company drilled a deep dry hole. H. J. Liggett 1 is 650 feet south and 650 feet east of the northwest corner of Section 36-7s-5w.

At South Elton, Jefferson Davis Parish, Stanolind Oil & Gas Company and Amerada Petroleum Corporation made location for Calcasieu National Bank B-4, 660 feet west and 330 feet south of the northeast corner of Section 29-7s-3w. The well is near the operators' 13, 210-foot dry hole, the fourth deepest well in the world.

In the South Roanoke area, Jefferson Davis Parish, Continental Oil Company's J. Sturdivant 1, Section 36-10s-4w, was drilling in shale at 9856 feet after logging a sandy shale with a gas show around 9713 feet. The well tried to blow out.

Starks Wildcat Abandoned

The Northwest Starks prospect, Calcasieu Parish, received another setback last week when Sun Oil Company abandoned Lutcher Moore 1, Section 1-8s-13w, at 9480 feet in water sand. Several broken formations were logged which contained odors of oil and gas.

Amerada Petroleum Corporation completed its first well at Villa Platte field, Evangeline Parish. Alexander Fournier 1, Section 44-3s-2e, came in flowing 640 barrels of 42 gravity oil daily through a quarter and 3/16-inch chokes at 9045 feet. Tubing pressure was 1450 pounds and casing pressure was 650 pounds.

W. T. Burton announced another wildcat location at Lake Ponchartrain last week. R. E. E. de Monteluzin 1 is 660 feet west of State 1 and in Section 1-10s-13w, Orleans Parish.

Pan American Production Company completed two wells in South Louisiana last week which are in new horizons for the respective fields. At Sorrento, Ascension Parish, United Lands 11, Section 15-10s-4e, was completed as a gas well at 1293 feet. It made 1,000,000 cubic feet of gas daily through a ¼-inch choke. At Charenton, St. Mary Parish, the operators Lawes Realty Company 1 was worked over and plugged back and perforated from 2000 to 2010 feet. It made 118 barrels of 22.8 gravity oil daily through a ¼-inch choke.

At South Baton Rouge field, East Baton Rouge Parish, William Helis had two disappointing wells last week. Duplantier 2, Section 65-7s-1w, was plugging back from 7240 feet to 3800 feet after running an electrical logging device. The crew will drill back down to the 6500-foot sand. Nelson 1 will probably be drilled to 8000 feet after logging salt water sands at 7055 feet. Broken formations with shows of oil were logged at 6780 feet and 6840 feet.

At Raceland, Lafourche Parish, Amerada Petroleum Corporation is setting 7-inch casing in South Coast Corporation 2, Section 34-15s-19e, at 10,524 feet. Godchaux Sugars 1, Section 34-15s-19e, was drilling in shale at 11,220 feet. Both are below the established producing horizon.

Gulf Oil Corporation is setting 5-inch casing in Quarantine Bay QQ4 at Quarantine Bay field, Section 17-19s-17e, Plaquemines Parish. The well is bottomed at 10,950 feet and is the deepest in the new field. It is below the established producing horizon. Broken shows were logged last week from 10,778 feet to the bottom.

North Louisiana Fields

Extensive drilling campaign indicated for Lisbon field.

Blue Lake offset has only slight show of gas; abandoned.

Shreveport.—Indications were given last week that the Lisbon field will see an extensive drilling campaign during the summer, especially to the northeast, northwest and southwest of present producing limits of the field.

Locations were staked in Sections 13 and 14-20n-5w, southwest of production, and northeast of production in Section 21-21n-4w, and successful completion of E. T. Oakes and Associates' T. M. Kilgore 1, NE SE 28-21n-5w, 1½ miles northwest of production will cause at least 6 new locations to be made at once, with others to follow.

Oakes and Associates were re-acidizing T. M. Kilgore 1 last week after re-cementing collapsed casing seat and finding that steel-line measurement showed corrected total depth of 5357 feet, which some identify as being in Travis Peak. This test logged 13 feet of saturated lime which had been previously identified as the regular Glen Rose basal lime that produces in Lisbon.

Harry Fotiades has contracted to start a test northeast of production in SW SW 21-21n-4w, by July 16 and Sklar Oil Company has contracted for immediate drilling in SW NW 14-20n-5w, and N½ SW, and NW SE of the same section immediately, this being southwest of production. Fotiades in the same locality is rigging one test in NW NW 13-20n-5w, and has location for another in the same quarter. Delta Drilling Company will start drilling in N½ SW, in SW NW and NW SE of Section 14-20n-5w, by August 1. J. W. Love has assigned to Atlantic Refining Company SE SE 29-21n-4w.

Mid-States Oil Company's Welori Lumber Company 1, C NW NW 3-20n-5w, a mile south of lower Marine production at Cotton Valley, Webster Parish, was arranging to test last week, after setting 7-inch casing. Total depth is 8673 feet. With elevation of 247 feet this test topped Bodcaw sand, the productive stratum, at 8597 feet, after topping the "C" sand at 8462 feet, and the "D" sand at 8502 feet.

A half-mile northwest of this test, Fohs Oil Company perforated with 50 shots at 8491 to 8518 feet, after logging the Bodcaw from 8482 to 8553 feet. Total depth is 8598 feet. Elevation is 249 feet. In the Cotton Valley field proper, Ohio Oil Company set 5-inch casing to test the Holloway (Travis Peak) horizon in Holloway 4, NE SW 23-21n-10w, after logging Holloway sand from 5538-54 feet and 5601 to 5608 feet. Total depth is 5633 feet.

An east outpost of Ohio Oil Company that has reached the lower Marine gas-distillate horizon and is running 7-inch casing is A. H. Gray 1, Account 3, SW SW 26-21n-10w, with total depth at 8103 feet.

On the north outskirts of Shreve-

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo Parish (Pine Island)—		
Nat Wiseman, Stiles 1, 27-21n-16w	30	1037
Claiborne Parish (Lisbon)—		
Magnolia, Lloyd 3, 2-20n-5w	1560	5270
Sells, Patton A-2, 11-20-5	480	5398
Texas Co., Tippett 1, 33-21n-4w	135	5318
Weaver Oil Corp., Edmonds 2, 16-20n-5w	*	5851
De Soto Parish—		
Petroleum H. & P. Corp., Williams 1, 13-11-12	*	2827
G. H. Collins, Joyner 1, 28-11-12w	†	2953
Ouachita Parish (Monroe)—		
Union Prod. Co., D'Arbonne A-4, 29-19n-3e	*	2188
Sabine Parish (Zwolle)—		
Hunter Co., Bowman-Hicks 3, 12-7n-13w	130	2602
Major Oil Co., Bowman-Hicks 1, 7-7n-12w	400	2398
W. L. Posey, Ramirez A-1, 12-7n-13w	*	2617
Sabine Parish (Blue Lake)—		
F. W. Martin & Co., Sabine 1, 37-7n-14w	*	4507
Union Parish (Monroe)—		
Inter-State Nat. Gas Co., Fee 80, 32-20n-3e	¶2½	2197
Tensas Parish—		
H. B. Schumacher, Mounds 4, 39-11n-12e	*	2450

*Failures; †Junked; ¶Million cu. ft. gas.

port, Caddo Parish, R. E. Allison and Associates' Ellerbe 1, SW NW 28-18n-14w, was coring hard lime in the Glen Rose at 5629 feet. This test logged massive anhydrite from 4332 to 4610 feet, checking 98 feet higher than a 9000-foot test drilled 3 miles to the south of it. Location is near intersection of axes connecting the four highest points structurally on the Sabine Uplift, namely: Bellevue and Waskom, and Pine Island and Bull Bayou.

F. W. Martin & Company abandoned Sabine Lumber Company 1, NE NE 23-7n-14w, ¼-mile east of J. G. Sutton-Zwolle Oil Company's well completed recently to open the 4200-foot Paluxy producing horizon in Blue Lake (West Zwolle), Sabine Parish. Total depth of Martin's test was 4507 feet and it ran formation tester at 4200 and at 3860 feet before plugging back to 3600 feet where it tested only a small amount of gas. Electrical log showed good porosity from 3540 to 3580 feet but resistivity was poor. Southwest of these tests, L. M. Moffitt who has several hundred acres, is planning a Paluxy sand operation.

The recently opened south end of the old shallow Zwolle oil field, Sabine Parish, around Section 12-7n-13w, has recently added several flowing wells and has 8 active operations, with 4 locations made.

Standard Oil Company of Louisiana and Joe Modisett's Frost Lumber Company 1, NE SW 14-21n-1e, Union Parish wildcat "in the Schuler trend," after logging a gas odor in hard gray sand from 9731 to 9737 feet, was drilling Thursday at 9791 feet in black silty dolomite. With elevation of 188 feet this test logged top of Permian lime at 9612 feet. Gulf Refining Company's Goodpine 1, SE SW 25-14n-8w, Bienville Parish wildcat, was drilling hard gray sand at 10,697 feet, this being at present the deepest drilling operation in the Shreveport district. After being delayed for several months due to high water, Continental Oil Company at last has started making hole in Singer Manufacturing Company 1, N½ NE NW 3-15n-11e, Madison Parish, northeast Louisiana, on a geophysical "high," the first of three such tests to be drilled on blocks this company owns in that general area.

Hutchinson Brothers of Caspiana, Caddo Parish, who own several thousand acres in fee in Township 15 north, Range 12 west, where a 9000-foot test was abandoned several months ago, have let contract to M. J. Kissick for a shallow test, location for which has not been selected, to drill for gas, offsetting a small 1900-foot gas well completed some years ago at that level.

Cotton Valley operators will meet in Shreveport July 26 to discuss recommendations for spacing and allowables of lower Marine oil wells in that field. Completion of the first real oil well in this 8000-foot horizon in this field recently has brought this matter to a head as the gas-distillate wells in this field at this depth have been classed as gas wells by the Louisiana Conservation Commission, which has imposed an 80-acre space rule for them and limited production to about 1,330,000 cubic feet daily per well, based on acreage and bottom-hole pressures. From the conference is expected to come recommendations for a formal hearing on this matter.

Sixty-six of the 244 oil wells in the Lisbon field, Claiborne and Lincoln Parishes are on artificial lift or agitation, according to the survey as of June 15 of the minerals division, Louisiana Conservation Commission.

On the same date the survey showed that 25 wells in that field were making small amounts of salt water, 18 being in Section 36-21n-5w, in the northwest part of the field that was developed first after the discovery well was completed in NE NE 1-20n-5w.

According to the July allowable for Lisbon, which is 10,000 barrels daily with an augmented field allowable of 11,000 barrels, there are 8250 barrels allotted to acreage and 2750 barrels to bottom-hole pressure. The area allotted to oil wells is 5952.9 acres, the acreage factor being one acre equals 1.38602 barrels.

The total bottom-hole pressure for the field is 223,224 pounds, the bottom hole pressure factor being one pound equal .01232 barrel. Gas limit permitted to be made with the oil is given as 21,989,400 cubic feet daily.

The total bottom-hole pressure for Lisbon on May 23 was 206,947 pounds and the area then allotted to oil wells was 5232.3 acres.

The Rodessa field, Louisiana, side was given a daily allowable of 38,000 barrels and an augmented daily field allowable of 66,000 barrels, based equally on acreage and bottom-hole pressure, had 8996.5 acres allotted to oil wells, the acreage factor being one acre equals 3.6681 barrels.

The total bottom-hole pressure for the Louisiana side of Rodessa as of June 1 was 455,492 pounds, as compared to 469,555 pounds on May 1. For July the bottom-hole pressure factor is one pound equals 0.0724 barrel.

The status of wells as listed for the July allowable at Rodessa follows: oil wells, 395; new gas wells, 68; original gas wells, 19; total, 482.

Shreveport, Louisiana.—Thirty-seven drilling permits were issued last week by the Louisiana Conservation Commission of which thirteen were in South Louisiana divided among the following parishes: Acadia, 1; Ascension, 2; Cameron, 1; Iberville, 2; La-Fourche, 1; St. Martin, 1; St. Mary, 2; Terrebonne, 2; and Vernon, 1. The 24 in North Louisiana were in the following parishes: Caddo, 4 (all in Pine Island); Caldwell, 1; Claiborne, 5 (four in Lisbon); DeSoto, 1; Lincoln, 1 (Lisbon); Morehouse, 1; Sabine, 5 (all in Zwolle); Union, 4; and Webster, 2 (both in Cotton Valley).

Huge petroleum exhibit for New York World's Fair

Petroleum's contributions to human progress and its significance for "The World of Tomorrow" will be dramatized by the Petroleum Industry Exhibition, Inc., at the New York World's Fair 1939. The exhibit will cover an area of 64,899 square feet, comprising one of the largest of the industrial displays.

A spectacular feature of the exhibit will be an oil derrick. Manned by living workers and with the most modern equipment, the process of drilling for oil will be demonstrated.

Another unusual feature of the exhibit will be an animated relief map of the United States, southern Canada and northern Mexico on which miniature oil derricks will graphically demonstrate the origin and expansion of the industry. Bodies of water coursing through and around the map will trace the principal rivers of the United States and the oceans surrounding it. The map will be in the Petroleum Garden, where modern refining processes will also be demonstrated by an animated model of a refinery.

The Petroleum Building will be an equilateral triangle in design and cover an area of 28,166 square feet. Measuring 200 feet on each side and 80 feet high, the building will be constructed of metal to catch the rays of the sun in the daytime and the brilliance of indirect lighting at night.

The exterior walls of the building will be in three shades of blue and will be constructed to form four flaring tiers, suggesting the shape of a cooling tower. The lighting effects will be achieved by the use of fluorescent tubing, each tier being lighted by the tier below it.

Instead of being built on the ground, the Petroleum Building will be chiefly supported by four huge reproductions of oil tanks, 20 feet high. Within the tanks will be exhibits showing how petroleum has revolutionized transportation and how the industry's constant scientific development has advanced agricultural and industrial expansion and resulted in making possible a large number of the modern comforts in the home.

The interior of the building, to be known as the Great Hall of the Industry, will have rows of seats to enable visitors to view a spectacular show which will be presented on the mammoth stage occupying the apex of the Great Hall. The show, which will dramatize the discovery and development of petroleum, will employ new techniques in its production and will mark an interesting advance in theatrical entertainment.

The Petroleum Building will be open on all sides, permitting a complete circulation of air as well as access from any part of the grounds. Wide exterior macadam walks surrounding the building will merge into it without interruption.

Companies participating in the Petroleum Industry Exhibition are The American Oil Company, Atlantic Refining Company, Cities Service Oil Company, Gulf Oil Corporation, The Pure Oil Company, Richfield Oil Corporation of N. Y., Shell Union Oil Corporation, Sinclair Refining Company, Socony Vacuum Oil Company, Inc., Standard Oil Company of N. J., Sun Oil Company, The Texas Company, Tide Water Associated Oil Company, and Phillips Petroleum Company.

East Texas water well report ordered

The Texas Railroad Commission has ordered reports on East Texas wells producing water to be filed with the commission by July 15. The report must include data on the current status of all wells which are incapable of making the allowables assigned and on all pumping wells, all wells making water, and wells producing with artificial lift.

Arkansas Fields

Expiring leases cause rush of drilling of Magnolia area.

Quarter-mile extension of Schuler production in prospect.

El Dorado, Ark.—Atlantic Refining Company, which recently acquired Kerr-Lynn Oil Company's Barnett 1, Section 14-17-20, Columbia County, completed at 7650 feet in Permian lime to open a new area near Magnolia, last week staked locations for seven tests in that area, all in Sections 12 and 14-17-20. Two of the tests will be started immediately as leases expire in August, as do a number of other leases in the original Kerr-Lynn block. Kerr-Lynn had assigned several companies tracts in this block in getting the discovery well deepened from original contract depth of 6300 feet. Grady H. Vaughn of Dallas, Texas, a fortnight ago had made one location in this area on a farm-out from Shell Petroleum Corporation and has staked the second on this 92-acre tract, giving the Magnolia area nine new locations.

A quarter-mile east extension of the Jones sand (Lower Marine) horizon at Schuler, Union County, appeared assured last week as Atlantic Refining Company in its initial test in that district, logged Jones sand from 7602 to 7639 feet in B. M. Dumas 1, NE NW 21-18-17, and set final 7-inch string on bottom, at 7692 feet. Top of Permian lime was identified in a core from 7678 to 7683 feet. Schuler failed to get a completion during the last week but two tests were about ready to set final casing string, Lion Oil Refining Company's Marvin 1, Section 18-18-17, that cored Lower Marine below 7601 feet where it was topped, and Mayfield 4, same section, that topped it at 7642 feet.

Two tests in the Village district, Columbia County, where a Permian lime producer was recently completed in Section 15-17-19, drilled ahead last week. Standard Oil Company of Louisiana's Tina Crumpler 1, C SW NW 15-17-19, that topped James lime at 3657 feet and was drilling sandy lime at 3758 feet, and Fohs Oil Company's W. P. Phillips 1, NW NW SW 15-17-19, that was drilling below 3950 feet.

On a geophysical location in wildcat territory north of Strong, Union County, Joe Modisett's Union Sawmill Company 2 (Frost), NE NE 8-18-12, was drilling below 2750 feet after logging 45 feet of formation in the Nacatosh just above 2372 feet and running formation tester with 28 feet of rat-hole, which showed 4 joints of mud and 30 gravity oil. This is a Permian lime test.

C. E. Murdock has spudded a wildcat test, Southern Kraft 1, NW NW 17-14-13, Calhoun County, 12 miles northeast of the first Permian production found in Arkansas, at Snow Hill, Section 27-15-15. The new test is planned for 5000 feet or deeper.

The lone drilling operation in the Buckner Permian lime field, Standard Oil Company of Louisiana's J. L. Warren 1, C NE NE 18-16-22, cemented 9⅝-inch casing at 2047 feet in chalk.

El Dorado, Ark.—Sixteen drilling permits were authorized last week by the Arkansas Board of Conservation of which 14 were for the Schuler field, Union County, 13 being by Phillips Petroleum Company as follows: H. P. Sewell 1, 330 feet north and east SWc Lot 5, SW 7-18-17; H. P. Sewell 2, 330 feet north and west SEc Lot 3, SW 7-18-17; H. P. Sewell 3, 330 feet south and west NEc Lot 5, SW 17-18-17; J. W. Edwards 1, 330 feet north and west SEc SW NE 17-18-17; Ed Gan 2, 330 feet south and west NEc SE NE 18-18-17; H. J. Miller 1, 330 feet south and west NEc Lot 4, SW 18-18-17; C. H. Murphy 2, 330 feet south and west NEc Lot 2, NW 19-18-17; J. C. Morgan 1, 330 feet north and west SEc Lot 1, NW 19-18-17; Alice Nelson 1, 330 feet north and west SEc Lot 3, NW 19-18-17; C. H. Murphy 1, 330 feet north and east SWc Lot 2, NW 19-18-17; J. C. Morgan 2, 330 feet south and east NWc Lot 1, NW 19-18-17; Marine 6, 330 feet north and west SEc NE NW 20-18-17; Marine 7, 330 feet north and east SWc NW NE 20-18-17. The other Schuler permit was to Lion Oil Refining Company for A. Nelson 1, 330 south and west NEc Lot 5, SW 18-18-17. Miller County—Ray L. Estabrook and T. D. Hill, E. L. Sherman 1, 454 feet east and 660 north SWc SW NW 29-19-28; La Fayette County (Buckner)—Standard Oil Company of Louisiana, J. L. Warren 1, 1980 west and 610 south NEc 18-16-22.

Arkansas sets Schuler and Buckner allowables

The Arkansas Board of Conservation set the oil allowable for the Jones sand (lower Marine) of the Schuler field at 15,000 barrels daily from the field's 52 wells for the month of July, an average of 288 barrels per well.

The figure is a potential boost of 88 barrels per well daily over the 9603 barrels for 48 wells or 200 barrels per well daily for June, but actually will be slightly more than double the June

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Miller County (Rodessa)—		
F. W. Burford, Mitchell 1, 2-20-28	552	6170

*Failures; †Junked; ¶Million cu. ft. gas.

Since 1776

In the 162 years since the Declaration of Independence we've forgotten many of the principles for which we fought. But in some cases, at least, the American people still reserves the right to buy where it pleases. Mindful of that fact, we have tried for thirty years to make it easy and pleasant for oil men to do business with PELCO. How the industry feels about it we don't know, except that old customers stay and new ones come along. If you operate in our area you might like the way we do business.

PELICAN WELL TOOL & SUPPLY CO.

SHREVEPORT LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe
Cotton Valley—Greggton
Houston

runs as explained by A. M. Crowell, chief agent for the board.

Average daily runs from the Jones sand wells during June was 142 barrels per well due to cramped market conditions. With a market assured for the entire allowable the full 288 barrels per well daily can be run.

The board set the allowable for the Reynolds or Permian lime of the Schuler field at 800 barrels daily for 4 wells producing from that level, an average of 200 barrels per well.

The July allowable for Buckner will be 1000 barrels for 5 producing wells, also an average of 200 barrels per well. The Village-Magnolia area with 2 wells was not prorated, but 200 barrels daily is being followed.

The board made no change in the figure for the Miller County extension of Rodessa, which now stands at the rate of 200 barrels per 10 acres on a potential basis.

Crowell reported that bottom-hole pressure of the Jones wells of the Schuler field has increased 12 pounds since May 11 and tests indicate a steady rise.

El Dorado, Ark.—The per-well average production for the 46 Jones sand (lower Marine) wells in the Schuler field, Union County, during May was 138 barrels, according to figures given by the Arkansas Board of Conservation. The daily average allowable for these wells combined was 7572 barrels but their combined daily average production was only 6370 barrels. The combined allowable for the month for this horizon was 234,721 barrels and combined production for the month was 197,468 barrels.

Pure completes new Illinois headquarters

Pure Oil Company completed construction of its new Illinois production headquarters office building west of Olney last week, and transferred operations from rented quarters in that city. A large warehouse, motor transportation building and guest house had previously been constructed on the 16-acre tract.

Start tests of gas wells

The Alberta department of lands and mines recently started annual tests of gas wells in the Turner Valley field. The tests should be completed by July 2, wells being grouped and tested for 3-day periods.

Mobile, Ala.—Union Producing Company has a seismograph unit working in Washington County, southwest Alabama, in an area where a new move to lease by several companies has been shown the last few weeks.

Jackson, Miss.—Union Producing Company has a seismograph reflection unit working around the flanks of the Jackson gas field. The company since 1929 has had several thousand acres under lease in the general vicinity and as these were 10-year leases, those that have not been developed will expire next year, which may have caused the geophysical survey now under way.

Eastern States

New Kentucky field has 10 producers, four more are due. Completions in all Eastern areas show substantial increase.

Pittsburgh.—Two fair oil wells were added to the new Birk City field of Henderson County, Kentucky, bringing producers in that area to 10. Another 4 promising tests were near the completion stage.

Carter Oil Company furnished the new wells: F. Dempewolf 1, which cored a 15-foot McClosky saturation, yielded 370 barrels the first 24 hours after treatment with 3000 gallons of acid immediately on drilling in. Bottom was at 1881 feet. O. L. Boswell 2, bottomed at 1915 feet, made 385 barrels the first day. Parker Drilling Company, wich is drilling for Carter Oil Company in this field, has derricks up for the Nos. 3 and 4 on the Boswell lease, both to be drilled with rotaries. Derrick is also up for Carter Oil Company's F. Dempewolf 2.

W. E. Hupp et al had T. Jones 1 and O. L. Boswell 1 cemented, and were preparing to drill in late last week. The Jones well, on a 14-acre tract, offsets A. E. Roscoe et al's O. Benham 1, present production record holder for the field. Hoosier Drilling Company, which opened the field two months ago with C. T. Blackwell 1, reported a showing of oil in No. 3, which should be among this week's completions. Still an unknown quantity was Major Oil Company's O. Greer 1, first test on the Daviess County side of the Green River, which had casing set to the top of the McClosky. It will be drilled in this week. The rotary outfit used to drill this well has been moved to the Harrington 40-acre lease. Major Oil Company has started Saunders 1, on a community lease at Birk City.

Kentucky Natural Gas Company has laid pipe lines to take gas from J. C. Ellis' K. A. Jones 1, near the Birk City pool, which was brought in with an initial gauge of 5,050,000 cubic feet a week ago. It is one of the largest gas wells to be drilled in this part of the state.

Magnolia Petroleum Company will drill on the Sam L. Green 92-acre tract, southwest of Spottsville, Henderson County, part of a 5000-acre block of leases on the Spottsville structure. Location of the test, 330 feet south of the north line and 330 feet east of the west line, was determined after geologic and seismographic investigation, and the wildcat will be drilled by E. M. Shields, of Mt. Pleasant, Michigan, just as soon as equipment can be moved in.

Indiana Deep Test

In Indiana, Carter Oil Company's C. Graulich 1, deep test on Section 4-7s-14w, Black Township, Posey County, was nearing the 4000-foot mark, drilling in hard limestone, sandstone and chert which was encountered near the 3000-foot level. An oil pay is expected between 4200 and 4500 feet, according to C. T. Snider, company geologist.

Robertson Oil Company, of Cleveland, will drill a Marion County test

EASTERN STATES
Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
Ashland County—		
Ohio F. G. Co., Hall 1	¶1.30	2880
I. Mapes 1	¶.37	2660
Athens County—		
N. C. Leeper, Cunningham Hrs. 32	¶.15	911
Belmont County—		
Barnesville Dev. Co., Schneider 3.	¶.75	1432
Fairfield County—		
City Nat. Gas Co., Bright 1	*	2024
Guernsey County—		
Ohio F. G. Co., Myers 1	*	1300
Hayes Ferguson, Davenport 1	*	1757
Lawrence County—		
Portage Prod. Co., Cambria Clay Products Co. 4	¶.40	3031
Licking County—		
Settles Oil Co., Robinson 1	10	746
Lorain County—		
Dillon & McFrederick, Schwearer 2	*	2577
Medina County—		
Ohio F. G. Co., Hendricks 1	*	2720
Monroe County—		
Blue Ridge O&G Co., Bowman 10	1	1633
Noble County—		
Barnesville Dev. Co., Pierce 1	¶	1671
Perry County—		
Atha Co., I. Melick 21	*	3157
Stark County—		
East Ohio Gas Co., Holtz 1	¶.60	4631
Washington County—		
H. O. Herlan, Decker 6	5	1040
John Smith, Robinson 1	3	665
Burkhart O&G Co., Hall 2	¶	1430
KENTUCKY		
Breckenridge County—		
Smith et al, Greene Bros. 3	*	391
Butler County—		
Baxter et al, Barton 1	*	978
Daviess County—		
Mahle et al, Williams 2	*	820
Floyd County—		
Sturgill et al, Layne & Damron 1	10	1508
Dorton & Pelfrey, Cleve Cecil 1	10	1517
Kentucky-W. Va. Gas Co., Taylor 572	¶.68	1330
Henderson County—		
Roscoe et al, Benham 1	750	....
Hupp et al, Gatewood 2	250	1911
Snowden & McSweeney, Dempewolf 2	150	1887
Ellis et al, Jones 1	¶5.05	1500
Johnson County—		
E. J. Evans, Thealka Coal Co. 4	¶.10	1810
Lee County—		
Brener & Adams, Johnson 2	*	....
McLean County—		
Hall & Booth, Smith 1	50	1170
Magoffin County—		
Jenkins, Adams 1	5	1170
Martin County—		
Virginian O&G Co., Fee V-1263	50	1612
Deiderich & Ware, Pauley 5	10	1343
Warfield Gas Co., Newberry 4733	¶.48	2700
Ohio County—		
Teller et al, Whitehouse 16	10	....
Marsh et al, Bellamy 2	3	....
B. & B. Oil Co., Midkiff 3	*	....
WEST VIRGINIA		
Cabel County—		
Templeton Gas Co., Browning 1	¶.25	3714
R. H. Adkins, Beckett 1	¶.25	2291
Lower Toms Creek Gas Co., Christian 1	¶.10	3220
Calhoun County—		
Chemical O&G Co., Miller 7	¶.08	2700
Gilmer County—		
O. R. Bush, King 1	10	1643
Scott et al, Moore 1	*	2414
Kanawha County—		
W. Va. Gas Corp., St. Clair et al 1.	¶1.39	4970
Pure, Williams Coal Co. 283	¶.50	....
Logan County—		
Southeastern Gas Co., Covey Heirs 2	¶.33	2855
Pleasants County—		
Doty O&G Co., Doty 1	5	820
Ritchie County—		
Carnegie Nat. Gas Co., Sayers 973	*	2091
Roane County—		
United F. G. Co., Vineyard 4798	¶.09	1900
Wetzel County—		
Har Lee Oil Co., Midcap 1	*	2205
INDIANA		
Vigo County—		
Carter, Roy et al 2	317	2157

on the Frank Denny farm, one mile east of Shoals, to a scheduled depth of 3000 feet. This Indiana county has previously yielded both oil and gas, but has been devoid of activity during the past year.

Unusually heavy leasing activity has taken place in recent weeks in Greene County, Ohio, with most of the filing being done by Sun Oil Company. This company has 161 leases covering 18,687 acres, according to county recorder's records. A total of 32,200 leases are under lease in the county. The only test thus far drilled in Greene County was by Midwest Development Company, a small producer on the Archie Peterson farm, south of Yellow Springs.

In the New York-Pennsylvania deep sand gas area, McHenry et al's Stellman 1, wildcat in Rockland Township, Venango County, Pennsylvania, was attempting to dislodge tools about 15 feet from the bottom of the 4719 foot hole after striking an unexpected heavy gas flow. Source of the gas has not been determined, although it is believed from a stray pocket in the top of the Onondaga or in the Marcellus shales. One new operation was started last week: G. L. Cabot, Inc.'s Gibson 1, in the prolific Woodhull Township field of Steuben County, New York. Work in this area continues at a comparatively low ebb.

But a continued improvement was noted in the Eastern States area generally. Kentucky completions jumped from 13 to 20, the past week's lot including 11 oil wells with an average initial daily production of 118 barrels, 4 gas wells and 5 dry holes. West Virginia held its own with 13, the past week's group comprising 2 oil wells averaging 8 barrels daily initial, 8 gas wells and 3 dry holes. In Ohio, finished operations declined 1 to 18, of which 4 were oil wells of 5 barrels daily initial average, 8 were gas wells and 6 were dry holes. Pennsylvania gained 1 well, the week's 4 including a small oil well, 2 gas wells and 1 dry hole. Indiana had a 317-barrel producer, its sole completion.

76 West Virginia drilling permits issued in May

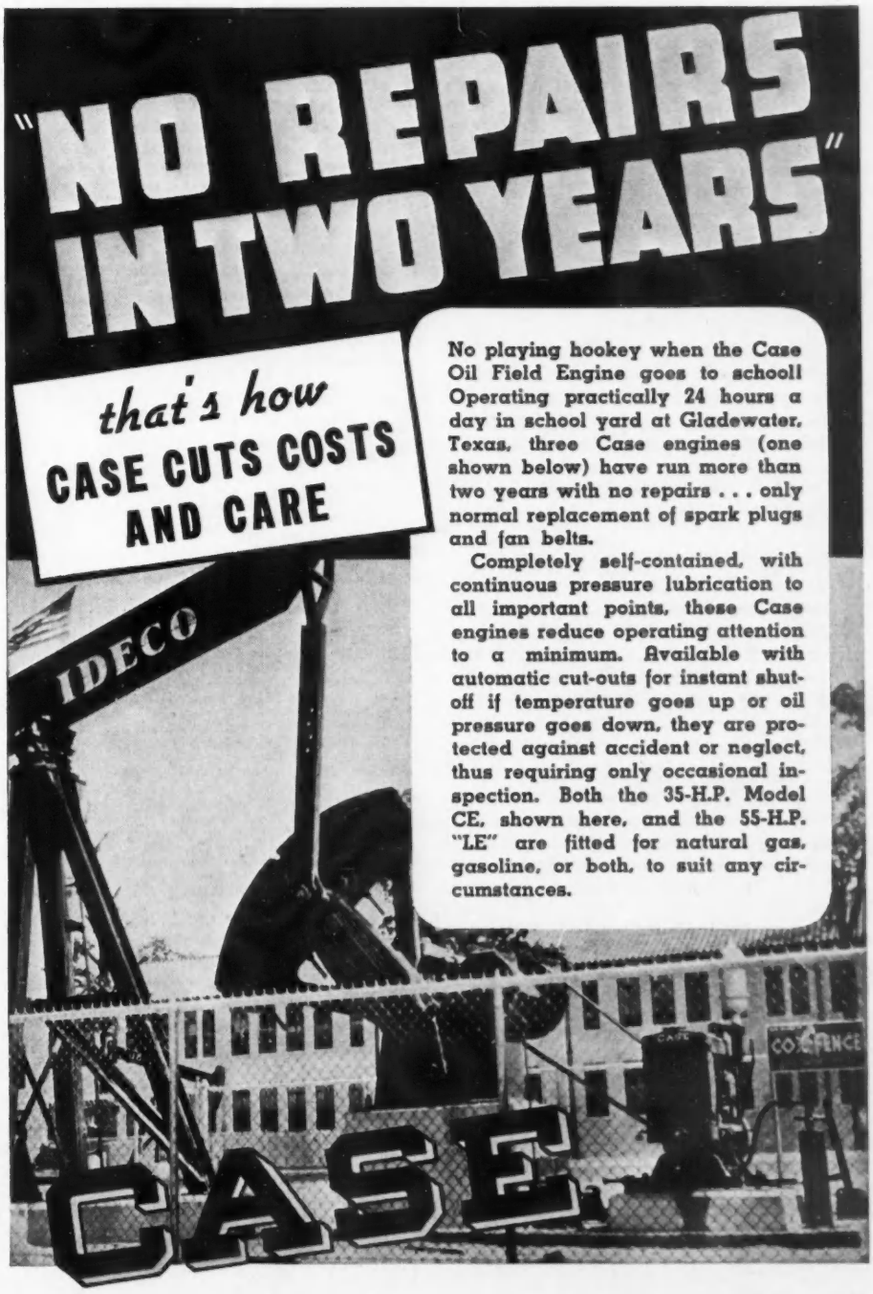
Charleston, W. Va.—A marked increase in drilling permits issued by the West Virginia department of mines during May over the previous month was reported last week by N. P. Rinehart, head of the department.

May permits totaled 76, a gain of 85.3 percent over the 41 issued in April, but 25 percent below the 101 issued in the corresponding month a year ago. Kanawha County, with its prolific Oriskany sand gas production, and Ritchie County, leading in oil production, topped state counties last month with 9 permits each.

Other counties reported: Boone 8, Braxton 1, Cabell 2, Calhoun 4, Clay 4, Doddridge 1, Fayette 1, Gilmer 8, Harrison 3, Jackson 1, Lewis 1, Lincoln 1, Logan 1, Marshall 1, Pleasants 2, Roane 4, Tyler 1, Upshur 1, Wayne 5, Wetzel 4, Wirt 3, Wood 1.

Company, Well and Location	Init. Prod. Bbls.	Depth
PENNSYLVANIA		
Allegheny County—		
Equitable Gas Co., Link 3832	*	2050
Greene County —		
Equitable Gas Co., Lapping 1.....	¶.07	3327
Potter County—		
Hanley & Bird, Rooks 1.....¶7.00		5009
Washington County—		
Williams et al, Buchanan 2.....	4	1030
Bradford District		
Alice Freeman et al, Margaret Wixon & Co.	3	....
Bi-State Oil Corp. Fee.....	2	....
L. L. Slingerland, Fee.....	½	....
D. E. Quinlan Estate, Fee.....	2	....
Penn Valley Crude Oil Corp., Redfield	5	....
Bradford Transit Co., 11 wells....	11	....
Forest Oil Corp., 3 wells.....	3	....
Niagara Oil Corp., 6 wells.....	6	....
Brink & Brink, 268 Bing.....	1	....
Water (Pressure) Wells		
Quinlan Brothers, Fee, 1 well.....	...	....
Forest Oil Corporation, 1 well.....	...	....
Forest Petroleum Corporation, 1 well	...	....
Niagara Oil Corporation, 4 wells...	...	....
Victory Oil Co., Wright, 2 wells...	...	....
Hardwick, Rice & Tuohy, Fisher, 1 well	...	....
Butler-Armstrong Area		
E. Z. Peffer, Martha Kelly.....	10	....
Middle District		
Lamberton National Bank, James Bleakley	1	....
M. E. Bolles, E. M. Bolles.....	1	....
G. H. Klingler, G. H. Klingler.....	1	....
W. E. Fertig, Kehr.....	2	....
NEW YORK-PENNSYLVANIA; Gas Field		
New York State Natural Gas Co., C. D. Carr.....	¶	....
G. L. Cabot, Inc., C. Groves 2.....	¶	....

*Failures; †Junked; ¶Million cu. ft. gas.


"NO REPAIRS IN TWO YEARS"
that's how CASE CUTS COSTS AND CARE
No playing hookey when the Case Oil Field Engine goes to school! Operating practically 24 hours a day in school yard at Gladewater, Texas, three Case engines (one shown below) have run more than two years with no repairs . . . only normal replacement of spark plugs and fan belts.
Completely self-contained, with continuous pressure lubrication to all important points, these Case engines reduce operating attention to a minimum. Available with automatic cut-outs for instant shut-off if temperature goes up or oil pressure goes down, they are protected against accident or neglect, thus requiring only occasional inspection. Both the 35-H.P. Model CE, shown here, and the 55-H.P. "LE" are fitted for natural gas, gasoline, or both, to suit any circumstances.
IDECO
CASE

J. I. CASE COMPANY • RACINE, WISCONSIN

Distributed and serviced in the Mid-Continent field by Southwest Equipment Company, Dallas and Kilgore, Texas.

Stocks carried at Dallas, Houston, Kilgore, Texas; Shreveport, Louisiana; Oklahoma City, Oklahoma; Wichita, Kansas.

Illinois Developments

Field work again on increase in Coal Basin area.
Two Decker Township discovery offsets being completed.
Clay City and Riggs fields to get more drilling.

Olney, Ill.—With The Pure Oil Company leading the field with nine new locations, activity in Illinois basin areas increased last week. New work in the past month had been practically limited to a few demand offsets.

Nollem Oil & Gas Company's (Nollem & Benoist) Kelley 1, Section 25-4s-2e, Elk Prairie Township, promised a new Jefferson County pool when the 3002-foot hole filled up 2500 feet from the McClosky sand which had been penetrated less than a foot. It is the first production from the McClosky formation in that county.

Gulf Refining Company's R Wilson 1, Section 30-1s-5e, promised pool opener in Hickory Hill Township, Wayne County, produced salt water when its 6 feet of McClosky saturation was acidized. The well is shut down for orders at 2996 feet.

Value of J. V. Wicklund Development Company's W. R. McCauley B-1 pool opener in Decker Township, Richland County, should be more definitely known this week with scheduled completion of two of four drilling offsets. The Pure Oil Company's R. Van Matre A-1, north offset on Section 7-2n-9e, was coring at 3030 feet, while the same company's E. Ashmore A-1, east offset on Section 7-2n-9e, was drilling at 2850 feet. Pure also has the west offset—E. L. Greeson 1, Section 12-2n-8e—which was drilling at 1200 feet. Wicklund's W. R. McCauley B-2, south offset on Section 7-2n-9e, was drilling below surface pipe at 200 feet.

The Clay City Township pool of Clay County, hot spot of the Illinois basin area a year ago but dormant for several months, was revived by The Pure Oil Company's B. Travis B-3, Section 32-3n-8e, completed at 3019 feet with a large flowing McClosky sand production. The well provides a westerly extension to the pool and immediately brought announcement of 8 locations in the township by Pure. They are: C. R. Bunn B-1, Section 17-2n-8e; Daisy Bunn A-2, Section 16-2n-8e; W. H. McKinney 5, Section 9-2n-8e; J. E. Moseley 2, Section 16-2n-8e; Tetrick A-4, Section 9-2n-8e; C. D. Duff 1, Section 32-3n-8e; A. Moseley 2, Section 33-3n-8e, and Chas. Wilkins 10, Section 29-3n-8e. The Pure company's ninth location was in the Cisne area of Wayne County, the C. B. Clay 3, Section 27-1n-7e.

The Riggs field of Wayne County, also without activity for several months, was returned to the southwestern Illinois oil play when The Pure Oil Company started S. S. Gill 4, Section 27-2n-8e, Zif Township. Surface pipe was set at 200 feet at last report.

South of Fairfield in Wayne County, H. H. Weinert, Inc.'s R. C. Twist 1, Section 33-2s-7e, a wildcat, was drilling at 3000 feet. Two other Wayne County wildcats will start shortly; Hanke et al's Collins 1, Section 24-1s-9e, Massilon Township, near the Edwards County line, and Allen, Lake & Elmer's R. Hazel 1, Section 20-2n-9e, Mt. Erie Township, a mile south of Wynoose and at the Richland County line. Both had derricks up.

Between Clay City and Flora, Clay County, Ohio Oil Company will drill a wildcat, H. Hardy 1, Section 9-3n-7e. Pits were being dug last week. The test will be closely watched as it may indicate a link between the Clay City pool and the newly opened Flora pool.

ILLINOIS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Bureau County—		
Harrington Bros., L. Dotey 1	*	1347
Champaign County—		
Nedra O&G Co., (Casey-Edwards Oil Co.), H. Mohr 1	*	685
Clay County—		
Pure, Staley 3	923	3040
Carter, W. T. Cox 1	*	4326
Nu Crude Oil Co., Gill 1	*	3098
Clinton County —		
Kennedy & Plangle, Eisenmeir 1	*	1352
Ohio, Trame 4	*	1006
Robbin Oil Co., Kohrman 4	75	995
Shell, Buehler 5	130	1345
Kaelmel 4	58	1370
Gulf, Buehler "Central" 1	224	1370
Buehler 4S	19	1371
Buehler 5S	72	1385
A. & E. Buehler 6S	38	1378
A. & E. Buehler 7S	141	1396
A. & E. Buehler 8S	*	1406
A. & E. Buehler 9S	187	1379
A. & E. Buehler 10S	32	1391
A. & E. Buehler 11S	75	1389
Adams O&G Co., P. Heiss 1B	450	1380
John Pugh Drilling Co., Allen 1	300	1370
Gutzler 1	400	1376
A. D. Ryan, Krietemeyer 1	550	1365
E. A. Johnson, Gutzler 1	480	1378
Myers et al, Gutzler et al 1	350	1377
Huff et al (Deaton et al), Kuhn 1	450	1384
Eason et al, Sailor 2	150	1362
Bell, Riley & Lacy, Gamble & Gaither 1	135	1379
Thompson & Hutchins, St. Clair Foundry 1	125	1400
Thompson & Self, E. Hanseman 2	250	1387
Crier & Grode, Lody 1	50	1404
Bonnie O&G Co., Gerber 1	250	1387
Fayette County—		
Sam Jarvis, Sinclair 1	250	1466
Jefferson County—		
Carter, Warner 1	329	1961
McDonough County—		
Jones et al, McClure 1	*	820
Macoupin County—		
American Pet. Corp., Snedeker Bros. 2	*	550
Snedeker Bros. 3	¶.74	440
Marion County—		
Vaughn et al Thalman 1	*	1759
Bond & Bailey (J. Darnell), Clark 1	190	1390
Miller et al, Gregory 1	125	1391
T. T. Eason, Schneider 1	160	1375
Bassinger & Lewis, Koelling 1	*	1474
John Pugh, Church 1	220	1390
G. C. Rowland, Reynolds 1	225	1382
Sparta Oil Co., Raines 1	250	1384
L. J. Burch, Hediger 1	280	1378
Richland County—		
Pure, Colburn 3	270	3035
C. T. Montgomery 6B	389	3018
H. W. Schilling 1	1906	3037
Minnie Taylor 1	653	3080
Ohio, Schilling 3	940	3021
Wabash County—		
J. D. Toomey Est., Litherland 9	*	1592
Wayne County—		
Pure, Gibson 1	415	3148
John & Mike Myers, Bowles 1	*	3215

*Failures; †Junked; ¶Million cu. ft. gas.

Carter Oil Company was moving a rig to Neely 1, Section 13-3n-6e, south offset to Kingwood Oil Company's F. Graham 1, the Flora pool opener. The discovery is pumping at the rate of 20 barrels an hour, pipe line to the well having been completed. Third test in that area will be by Gulf Refining Company on the R. Pierce tract, Section 13-3n-6e.

A half-mile southerly extension to the Olney field was furnished by Mitchell & Ruwe's (Sylvester et al's) A. E. Bunn 1, Section 26-4n-10e, Richland County, which had a McClosky saturation between 3094-3100 feet, 3102 feet total depth. The well is not expected to make more than a good producer, but immediately brought three new starts. Two of them will be by Fortney Oil Company on the E. G. Miller lease, between Bunn 1 and the previously proven part of the field. Both on Section 26-4n-10e, Olney Township, pits were being dug for No. 1 and location was being cleared for No. 2. Sylvester et al will drill a south offset on the M. Osborne tract.

Bur-Kan Petroleum Company started J. Harrison 1 wildcat, Section 2-7n-10e, 2 miles west and 1 mile north of Hunt City, northeastern Jasper County. Destined for the McClosky sand at about 2700 feet, seven possible saturation areas will be cored and tested during drilling. Assisting in the test are Ohio Oil Company, Shell Petroleum Corporation, Kingwood Oil Company and Gulf Oil Corporation, all holding acreage in Sections 2, 3, 10 and 11.

Leach Bros.'s Albert Lee 1, Section 11-1s-10e, Albion Township, Edwards County, which had been reported temporarily abandoned, resumed drilling last week and was reported at 3290 feet.

Michigan collects $690,000 in oil and gas bonuses

Michigan last year collected $690,000 in oil and gas bonuses, rental and royalties, the largest amount in the history of the state's oil and natural gas industry, the state conservation department reported last week. The revenue comes from approximately 279,800 acres of state-owned land under lease.

A total of $58,000 has been collected by the department in bonuses on 53,000 acres leased during 3 sales conducted this year. The state collects, in addition to the bonus bids, a rental of 50 cents an acre, which rental fee advances to $1 if drilling is not started within a specified time. When operations start, rental drops back to 50 cents an acre. The regular one-eighth royalty is collected on production.

Almost equal to the $690,000 in bonuses, rental and royalties, is the state's receipts from the 2 percent severance tax on both oil and gas.

Complete Florida geophysical work

Miami, Fla.—Gulf Oil Corporation is reported to have completed its geophysical survey of over one million acres in Collier and adjoining south Florida counties, secured from Clem S. Clarke of Shreveport, Louisiana, and now assembling and correlating the data. At least one test is expected to be drilled within the next several months.

Rocky Mountain Fields

Attempting to extend Elk Basin north and south.

Lance Creek southeast extension nears objective.

Shoshone deep test gets 40 feet of saturation.

Casper, Wyo.—Elk Basin field, on the state line in Carbon County, southern Montana, and Park County, northwestern Wyoming, is being tested on its north and south limits. The northern extension attempt, being drilled in Carbon County, Montana, by Henderson Producing Company, is Elk 1-H-11, SE SE NW 35-9s-23e, drilling at 1799 feet. The hole was shut down at 1626 feet during the winter and when resumed a week ago reported 600 feet of oil standing in the hole from this depth. On the southern edge of the field, Valentine M. Kirk and J. A. Watson's B. J. Johnson 1, NE NE NE 6-57n-99w, in Park County, Wyoming, is rigging up to ream to bottom and will lower 5-3/16-inch casing for a test of oil shows encountered in Cretaceous beds.

Another test well on the northern edge of the pool, the Sha-Wa Petroleum Corporation Woods OPC-2 1, SW SW NE 35-9s-23e, is gun perforating casing at 2983-90 feet in the Muddy formation for a production test. It encountered water in the lower sections of the Dakota horizon at 3045-60 feet and plugged back from 3123 feet in the Morrison shale to test the upper sand. Italo Petroleum Corporation is rigging up cable tools to deepen Skeleton-Government 1, SW SE NE 13-44n-98w, northeast extension test of Hamilton Dome field, Hot Springs County, north central Wyoming. The test spudded early this year and shut down waiting on final test in the company's Phebus-Government 1, on the northwest edge of the field, which was completed a week ago. The present well is a quarter mile to the northeast of the nearest producing well in the field.

Plugs Back to Test

A southern outpost well in the jointly operated Big Medicine Bow field, in Carbon County, southern Wyoming, Ohio Oil Company and The California Company's State-Griffin 3, CSW NW 36-21n-79w, has plugged back from water encountered in Sundance sand at 5694-5711 feet and is preparing to drill plug to test oil shows found in the Muddy sand at 5220 feet.

In the Lance Creek field, Niobrara County, eastern Wyoming, the J. M. Huber Corporation's H & M, NW NE NE 8-35n-65w, southeast extension test of the field, is coring at 4961 feet in the Opeche lime beds and nearing the top of the Converse sand, first horizon of the Minnelusa series, objective sands of the test. J. E. Manning et al's Elsie Peklo 1, SE SE SE 1-35n-66w, on the extreme southwestern edge of the Lance Creek field, has cemented back from the Leo sand, second Minnelusa formation, at 5677 feet to the Lakota at 3475 feet where a test of oil shows will be made. The well tested water in Sundance and Minnelusa horizons. Also on the southwestern side of the field, C. L. Price's Jon Lamb 4, CSE SW 12-35n-66w, is drilling in the Muddy sand at 4610 feet and is reported checking higher than was expected.

Producing limits for the Leo sand of the Lance Creek field have been determined definitely on the east side of the field, and at 1 point on the west side where the Manning well reported water. The northern and southern limits of the deep pool have not been proven and operators are working to determine these limits preparatory to establishing a participating area for the future development and control of the deeper sands of the field.

Deep Sand Search Grows

Deep sands in old proven areas are also receiving renewed attention in the Rocky Mountain district following the revival of several pools including the Quealy, Rock River, and Salt Creek fields by the addition of deeper drilling wells opening lower producing formations in the area. The Ohio Oil Company's A. J. Hazlett Estate 3, CNW SE NW 34-23n-79w, deep test well in the Allen Lake Gas field, in Carbon County, Wyoming, was a disappointment in the Tensleep sand this week when it tested at the rate of 50 barrels of water per hour in this formation. Well is being cored ahead with the Madison lime as its next objective. The Tensleep was logged at 3864-94 feet and hole is being pushed ahead at 3947 feet.

Operators are preparing to run casing for a test of 40 feet of saturation in the Embar lime at 4700-40 feet in Paul Stock's Rousseau 1, SE SE NE 20-53n-101w, deep test in the Shoshone anticline, or Cody structure, in Park County, northern Wyoming. The anticline formerly had some production from the Muddy sands at around 800 feet, but has not been producing for several years.

In Moffat County, northwestern Colorado, the Stanolind Oil & Gas Company's Shawn S-D 3, NW NE NW 27-4n-92w, in testing after coring deeper into the Basal Sundance formation in which hole now bottoms at 3662 feet. Well formerly produced from the upper sand at 3402 feet.

Stanolind was also the company which opened the deep Tensleep formation for commercial production in the old Salt Creek field, still the largest producing field in Wyoming, with main production coming from the Wall Creek sands in the Frontier horizon. The company's Wyoming Associated Oil Company-Tensleep 26, CSE NW 35-40n-79w, most recent of the wells to drill the deep sands, is testing through gun perforations in casing cemented below the Tensleep sand at 3996 feet with hole bottomed at 4002 feet.

In Hot Springs County, north central Wyoming, the Honolulu Oil Corporation is drilling at 3903 feet in Government 1, NE SE NE 12-44n-97w, on the Waugh Dome field. The well, which is the only producer on the structure, formerly produced from Embar lime, but went to water early this year and deepened to test the Tensleep sand. A 40-foot section of saturation was reported at 4070 feet in the objective sand. Operators accidentally cemented tubing in the hole while preparing for a production test of the deep sand and were forced to cement whipstock at 3580 feet and drill out through casing into new hole to recomplete.

Petroleum taxes approach total value of crude oil

Total taxes imposed upon the petroleum industry and the sale of its products in 1937 represented a levy of nearly 90 percent on the value of the industry's output of crude oil, according to the American Petroleum Industries Committee. Estimated at $1,314,865,361, the petroleum tax bill fell short by less than $200,000,000 of the total value of crude oil produced in 1937, reported at "just over $1,500,000,000" by the U. S. Bureau of Mines.

In order to produce the 1,278,000,000 barrels of crude oil required last year to meet the demand for petroleum products, the industry utilized oil field facilities representing an investment of close to $6,000,000,000. Oil field workers received more than $250,000,000 in wages, and farmers and other landowners received some $200,000,000 in rentals, royalties, and bonuses. Scores of American industries were given orders for equipment and supplies aggregating well over $500,000,000.

Government's tax income of $1,314,865,361 in tax revenue from crude oil and its products was largely net, the committee points out, since the petroleum industry acted as collecter of most of these taxes. Gasoline taxes last year made up approximately 73 percent of the petroleum tax bill.

While the $1,500,000,000 of economic value created by the production of crude petroleum ultimately creates purchasing power amounting to several times that figure, the funds derived by government from taxes on oil are diverted from channels of trade and accordingly do not tend to stimulate business, the committee concludes.

MOUNTAIN STATES Completions

UTAH

Company, Well and Location	Init. Prod. Bbls.	Depth
Grand County (Seven Mile Dome Structure)—		
Columbia Crude Corporation, Rath-Government 1, ne sw 12-25s-20e	*	3992
WYOMING		
Hot Springs County (Hamilton Dome Field)—		
Italo Petroleum Corporation, Phebus-Government 1, nw nw sw 11-44n-98w	400	3356

*Failures; †Junked; ‡Million cu. ft. gas.

Michigan Fields

Three widely separated wildcat tests under observation. Montcalm County gasser producing from Michigan Stray.

Mt. Pleasant, Mich.—Oil-gas shows in three widely separated wildcat tests were under observation early this week to cause the principal excitement at the close of the month.

G. H. Schrack's Fee 1, SW NW SW Section 17-22n-9w, Haring Township, Wexford County, logged an oil-gas show in lime, probably the Monroe, 142-150 feet below the Dundee top. Operations were temporarily suspended for a test. The wildcat well carried a hole full of water from a zone drilled about 12-18 feet below the Dundee top at 3740 feet. Five-inch casing had been set and cemented at 3748 feet.

Operators considered running a string of 3-inch tubing with packer to dry up the hole and test the pay. Tests of bailed oil indicated it might be of the heavy dead black type and of no commercial importance.

The Wexford district long has been under the scrutiny of both major and independent companies. It lays northwest, about 45 miles, of the Sherman and Vernon Dundee-Monroe pools in Isabella County. Several years ago a Dundee-Monroe test was drilled near the present test. It showed considerable oil, and James Braden, contractor and interest holder, often expressed the belief that had acid been in use at the time, that a commercial well could have been established.

Clare County Show

S. J. Higelmire, Trustee's Van Horn 1, Section 3-18n-6w, Freeman Township, Clare County, showed oil-gas at 3377-78 feet, after logging Traverse lime top at 3248 feet. After a 5-day shut down, drilling was resumed June 28 and 17 feet of additional drilling below the logged pay Traverse zone failed to establish any increase. Operators said they probably would drill ahead to the original Dundee objective. If this formation proves dry an attempt may be made to plug back and establish commercial production by acidizing.

Leon B. Chulski, Trustee's Tuttle 1, Section 22-3n-12w, Hopkins Township, Allegan County, drilled a good oil-gas show in Traverse limestone at 1722 feet (top Traverse 1718 feet) and shut down. Test is wildcat, 8 miles southeast of the Traverse pool in Monterrey Township.

Resuming of drilling operations last week after a 7-month shut down on the only location in the Upper Peninsula of Michigan is the cause of considerable interest. Charles Van Kuren, independent, has about 10,000 acres in a single block under lease from the Hiawatha Sportsman Club. Van Kuren drilled a test a year ago to 1501 feet on the club property. A fair oil-gas show was reported at 1058 feet in the Upper Trenton lime.

A fishing job and bad weather combined to force cancellation of the second test last December at 280 feet on the No. 2, NE SW SE Section 5-44n-9w, Mackinac County, about 25 miles out of Newberry. The 280-foot start was junked and the machine skidded when drilling was resumed last week.

Gas in Michigan Stray

The second new Michigan Stray sand gas field appeared confirmed this week when L. T. Barber's Towle 1, a Socony Vacuum Oil Company farm-out, Section 14-12n-6w, Montcalm County, developed 1,820,000 cubic feet of gas at 1278 feet. Top of the sand was 1253 feet. Test is about ¾-mile northeast of a 4 million foot well drilled by Socony last spring.

Facing the likelihood of "running out of hole," Sun Oil Company continued to deepen the State B-1, SW SW NE Section 9-15n-1w, Jerome Township, Midland County, below 4500 feet this week. Dundee limestone was the original objective of the test, a wildcat located 3 miles south and 2 miles east of the Edenville field. Five-inch casing is cemented to the top of the Dundee at 3672 feet. This formation did not show. Top of Monroe was logged at 3830 feet. At its present depth it is one of the deepest wells drilled in Michigan this year.

MICHIGAN Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Sprenger Bros., Barber 1, se se ne 8-3n-13w	*	1686
Rex Oil Co., Jewett 1, nw sw se 9-3n-13w	450	1648
Lentz & Miller, Sebright 4, ne nw sw 16-4n-13w	250	1616
Hirzel Leland Corp., Hardy 1, se nw 21-4n-13w	175	1568
G. V. Eenenaam, Moomey 1, ne nw se 21-4n-13w	200	1550
Lima Oil Corp., Nahr 3, nw se nw 22-4n-13w	75	1585
Arenac County—		
C & M Securities, Hanggi 1, ne se se 26-19n-3e	*	3070
C. W. Teater, Withey 1, ne se ne 5-19n-6e	*	3133
Clare County—		
James A. McKay, Loveless 1, se ne nw 35-17n-4w	2	1320
Gladwin County—		
McClanahan Oil Co., Wineman 1, ne sw se 4-17n-1e	*	3822
Kale-Grave, Chovich 4, se ne se 23-18n-1w	100	3599
Rex Oil Co., Gray 2, sw nw nw 25-18n-1w	100	3589
W. E. Ross, Kinyon 1, nw nw ne 18-18n-2e	*	3608
Dougherty & Markey, Lalone 1, sw se se 32-17n-1w	*	4088
Isabella County—		
Pure, Wille 13, n n nw 4-14n-6w	120	3648
Midland County—		
Chapman Oil Co., State 4, ne sw ne 27-16n-1w	800	3785
Brehm Oil Co., Gould 1, nw sw ne 19-15n-2w	*	3660
Montcalm County—		
L. T. Barber, Nielsen 1, c sw 14-12n-6w	¶2	1278
Ogemaw County—		
Weber Oil Co., Gray 1, ne ne nw 2-21n-2e	35	2628
Redman Oil Co., Bennett 1, sw ne ne 13-22n-3e	*	2959
Fortney Oil Co., County Farm 5, nw sw nw 20-22n-2e	73	2690

*Failures; †Junked; ¶Million cu. ft. gas.

Oregon wildcat is abandoned at 6210 feet

Portland, Oregon.—Sun Oil Company's Donovan Lumber Mills Company 1, NW NW NW 4-28n-13w, Callam County, Washington, has been abandoned at 6210 feet. This wildcat logged numerous gas shows, but not in commercial proportions. Nine-inch pipe was cemented at 3880 feet, and liner was set to test promising gas showings in soft sand below 6086 feet. R. L. Marston, superintendent in charge of the Texas rotary crews used on the project, ordered the rig stored near the coast, and the workmen have been given a vacation before reporting for duty in Texas.

● BANG-UP
4th of July
SUGGESTION!

Would a boiler explosion, or even damaged crown sheets, worry you? Or do you think that boiler explosions, like automobile wrecks, are something that happen only to the other fellow?

Insofar as the water level in your boilers goes, you can declare your INDEPENDENCE of fallible human hands. The INFERNO Safety Unit thinks and acts in every threatened emergency:

1. The INFERNO Feed Water Control automatically holds the water level between 3½" and 4½" above the crown sheet.
2. If the water supply fails, the INFERNO Lowater Alarm automatically blows a shrill whistle when the water level falls to 3" above the crown sheet.
3. If that warning is ignored, a further drop of 1" in the water level causes the INFERNO Fuel Cut-Off Valve to close the fuel line automatically, cutting off the fire before damage can be done.

Here's a BANG-UP 4th-of-July suggestion: Talk this over with your INFERNO Field Representative, or write us for Bulletin No. 15.

THE **INFERNO** CO.

"Makers of Better Steam Equipment"

P. O. Box 1138 Shreveport, La.

INFERNO

INFERNO Equipment is popular wherever steam is used for power.

New Mexico Fields

New operations indicate deferred drilling boom starting.

Vacuum extension producer may be separate structure.

Lea operators ask state aid on getting their oil run.

Hobbs, New Mexico.—Authorization of 16 new operations for Lea County, including 10 for the Vacuum area, provides a mid-year recovery from a drilling slump that followed in the wake of reduced proration allowables and restricted oil purchases by one of the largest buyers. This new activity was scheduled prior to the announcement by the Oil Conservation Commission that the state's production quota would be raised 10,600 barrels effective July 1 to 101,600 barrels daily. The production increase will be allocated to prorated wells in Lea and Eddy counties, where the top allowable has been 50 barrels daily.

New work scheduled for the Vacuum field may mark the beginning of a long deferred major drilling program. Proved acreage is available to support such a campaign for months. Crude demand and the price structure will be the determining factors. The Texas Company accounted for 5 of the new tests, having awarded contracts for the drilling of 3 wells on its State "O" lease, Section 36-17s-34e, and two wells on the north line of its State "R" lease, embracing the northeast quarter 6-18s-35e. All were required by producing offsets. Shell Petroleum Corporation is starting operations on State 3-A, C SE NE 31-17s-35e, and State 1-D, C SW SW 31-17s-35e. Phillips Petroleum Company's State-Santa Fe 8, C NW NW 5-18s-35e, is also in the southeast sector.

Completion of Phillips Petroleum Company's State-Santa Fe 6, C SW SE 21-17s-35e, major east extension, flowing 140 barrels oil in 3 hours after two-state acid treatment of lime at 4640 feet, has resulted in Magnolia Petroleum Company starting operations on State 1-L as a west offset.

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County—		
Repollo, Keel 3-A, sw se sw 7-17s-31e	243	3575
Parke 3-A, nw nw nw 22-17s-30e	290	3345
Lea County (Hardy)—		
Twin Oil Co., State 1, c se nw 32-21s-37e	500	3784
Lea County (Mattix)—		
Continental et al, Jack 3-A-20, c se ne 20-24s-37e	750	3582
Lea County (Penrose)—		
Two-States Oil Co., State-Cole-Gulf 2, c nw nw 16-22s-37e	854	3694
Lea County (Vacuum)—		
Phillips, State-Santa Fe 4, c sw se 31-17s-35e	500	4662
State-Santa Fe 6, c sw se 21-17s-35e	1120	4640
Texas Co., State 2-Q, c sw se 25-17s-34e	1320	4750
Lea County (Wildcat)—		
Repollo, State 1-197, se se se 6-17s-34e	250	5016

*Failures; †Junked; ¶Million cu. ft. gas.

The former's State-Santa Fe 7, 1¼ miles southeast of the extension well, resumed drilling at 3055 feet after blowing off prolific air pocket. The Texas Company's State 2-Q, C SW SE 27-17s-34e, averaged 55 barrels hourly on 7-hour natural gauge for completion at 4628-4750 feet. The latter's State 2-D, 1 mile southwest of the most westerly producer, was drilling at 4405 feet, having cemented 5½-inch pipe at 4175 feet.

Repollo Oil Company's State 1-197, located 4⅓ miles northwest of the Vacuum field and possibly on a separate structure, has been listed as a completion and shut in for pipe line connection. The final gauge was 75 barrels of oil in 7 hours through ¾-inch choke after two-stage acid treatment of lime at 4644-85 feet. The hole was plugged back from 5016 feet. Continental Oil Company's State 1-L-7, C NW NE 7-17s-34e, less than ½-mile to the southwest, has been ordered drilled to forestall lease expiration. The latter is on a 40-acre site, and is surrounded by Repollo Oil Company's holdings.

The Penrose sandy-lime area registered 3 new projects. Parker Drilling Company's State 1-A, C SW SW 21-22s-37e, has rigged up to fulfill development contract assumed in taking this 40-acre unit and the 40 acres adjoining on the south from The Texas Company for an over-riding royalty. Continental Oil Company et al's Elliott 1-B-17, C NE NE 17-22s-37e, has derrick up, and Lem Peters et al's L. J. May-Gulf 2, C W½ SE SE 27-22s-37e, is a southeast outpost.

Anderson Pritchard Oil Corporation's Harrison-Carlson 1, NW NE SE 22-25s-37e, and Twin Oil Company's Joyce-Pruitt 1, C SE SE 31-21s-37e, are new projects for the Langlie and Hardy areas, respectively. Shell Petroleum Corporation's Roy Whitten 1, C S½ SE NE 33-23s-36e, is seeking a north extension for the Cooper lime area.

Repollo Oil Company's Hair 2, NW SW NW 9-24s-37e, Mattix area, encountered in excess of 35,000,000 feet of dry gas production at 3385 feet, with 7-inch cemented at 3154 feet. Earlier well on this lease tapped the big gas at a higher level.

Lea County operators are seeking to enlist the aid of the conservation commission in inducing Shell Petroleum Corporation to resume purchase of all the allowable production allotted its connections. The latter concern lowered its takings 20 percent April 10, then on May 16 boosted its takings to 90 percent of the allowable, exempting wells that only produce 20 barrels or less. The commission has not recognized this restriction, and is crediting operators with back allowable that can be made up when market is available.

There are

124

Wells in the World

more than

10,000 ft. deep

•

94%

OF THESE WELLS

drilled with

PATTERSON BALLAGH PROTECTORS

. . . and thousands of wells less than 10,000 feet were drilled with them, too!

ASK FOR FREE WALL CHART LISTING ALL DEEP WELLS

PATTERSON-BALLAGH CORP., Ltd.
Plant and General Offices: 1900 East 65th St., Los Angeles, Calif. • Mid-Continent Office: 1507 Maury St., Houston, Texas • New York Office: 39 Cortlandt St., New York City.

IMPORTANT WILDCAT TESTS

ALABAMA

Barbour—H. A. Stebbinger's Town of Lewis 1, sw se 11-9n-25e, lcn. **Choctaw**—Joe Modisett et al's McCorvey 1, se sw sw 20-9n-2w, sd 7520 ft. **Greene**—R. T. Jeffrey et al's R. C. Lett 1, 3-20n-2e, (120 ft e Willis & Payne's), dr 700 ft (no recent report). **Mobile**—J. C. Prince's King 2, 1120 ft s and 700 ft w sec 4-1n-4w, elev 134 ft, sd 1160 ft. Grand Bayou O&G Co.'s J. A. Stafford 1, sw sw 24-7s-3w, ru and sd.

ARKANSAS

Crittenden—Stanley Oil Corp.'s D'Annar Hrs. 1, c 18-8n-9e, top paleozoic 3243 ft, arr test sg, td 3331 ft. **Clay**—Canadian American Oil Co.'s Smith 1, c ne nw 9-20-3, elev 375 ft, top Nacatoch 800 ft, sd 1005 ft shale. **Craighead**—Tenn. Ark., Inc.'s Ruby Martin 1, ne ne 35-14n-3e, woc surf csg. **Columbia**—J. A. Longino's Baker 1, se nw nw 13-17-20, mim. E. O. Olds' Mary Dennis 1, nw se sw 4-17-21, owdd, td 4513 ft. G. H. Vaughn & Shell's Garrett 1, c ne se 12-17-20, dk and mir; Wade Faker 1, c ne sw 14-17-20, lcn. Standard of La.'s Tina Crumpler 1, c sw nw 15-17-19, top chalk 2391 ft, set 9⅝ in csg 2408 ft, dr 3625 ft, red and blue shale, strks hd sand. Harris Unit 1, c ne sw 15-17-19, lcn. Fohs Oil Co.'s Phillips 1, nw nw sw 15-17-19, dr 3205 ft. Atlantic Ref. Co.'s Marshall Talley 1, sw nw 14-17-20, lcn. Marshall Talley 2, nw sw 14-17-20, lcn. N. L. Baker 1, 2, 3 and 4, se ne, sw ne, sw nw, se nw, sw ne 14-17-20, lcns. Phillip Turk 1, nw ne 14-17-20, lcn. **Johnson**—Ark. La. Gas Co.'s Hudson 2, se nw 14-10-24, rog. **La Fayette**—Standard of La.'s Warren 1, c ne ne 18-16-22, top Nacatosh 1418 ft, dr 1495 ft. **Little River**—J. G. Strahan's Dierks Lbr. Co. 2, sw se 21-12-28, elev 268 ft, owdd, top lime 2421 ft, coring 3003 ft lime. **Lonoke**—J. W. Eddington et al's Anderson 1, nw ne 7-4-9, 12-in csg 85 ft, sd 600 ft. Cabot Drlg. Co.'s Benson 1 (Cabot townsite lcn), sd 1463 ft. J. E. Russell's Gunter 1, se se 17-5s-10w, sd 830 ft. **Miller**—F. F. Earles' General American 1, se sw 20-14-26, sd 1206 ft. Estabrook, Hill & Crider's E. L. Sherman 1, sw sw nw 29-19-28, rur. **Pulaski**—Coker Oil Corp.'s M. S. Stone 1, sw ne se 36-3n-11w, 12½-in csg 108 ft. **Union**—Joe Modisett et al's Frost Lbr. Co. 1, ne ne 8-18-12, logged 45 ft Nacatosh formation, so, ran formation tester 2344-72 ft, showed four joints oil and mud, sr to deepen, td 2372 ft.

CALIFORNIA

Los Angeles: Bellflower—George L. Clayton's Scott 1, 32-3-12, co 6897 ft. **Castaic**—Royal Land's No. 1, 8-4-17, dr 850 ft. **La Mirada**—John McKeon's Carmenita 1, 21-3-11, dr sand and shale 4202 ft. **Newhall**—National Petroleum's No. 1, 27-4-16, sd 2436 ft. Palmluck's No. 1, 23-3-16, sd 25 ft. **Palos Verdes**—Rolling Hills' Weston 1, 27-4-14, co 4220 ft. **Pico**—British American's Pico 1, 12-2-12, sd 4568 ft. **Redondo**—Clifton's No. 1, 17-4-14, swabbing 5500 ft. **San Fernando**—Tide Water Associated's Porter 1, 27-3-16, dr 210 ft. **Whittier**—Security Land Co.'s No. 1, 8-2-11, dr sand and shale 1147 ft.

Orange: Costa Mesa—A. V. Oil's No. 1, 16-6-10, dr hard brown shale 3343 ft. **Kraemer**—Congress' Kraemer 1, 36-3-9, plugged to 2980 ft, td 3014 ft.

San Bernardino: Chino—Southern Counties' Los Serranos 1, 22-2-8, dr hard shale 250 ft.

Fresno: Clovis—Central Valley's No. 1, 1-12-20, co 540 ft. **Coalinga**—Amity's No. 1, 1-20-14, loc. Petroleum Securities' Gatchell 2, 18-20-16, dr below 6880 ft. Magnet's Fearon 2, 18-20-15, dr shale 2289 ft. Texas Co.'s Mohawk 19, 12-20-15, lcn. Universal Consolidated's Leavitt-Hintze 1, 12-20-15, rig. J. F. Wilcox's No. 6, 11-20-14, pumping 566 ft. **East Coalinga**—Pure's SPL 1, 14-21-15, co to deepen 5743 ft. Dauphin's Boone 1, 30-21-14, plugged 2330 ft, td 3780 ft. Section 19-21-14, Boone 2, foundation. **Panoche Hills**—Panoche Hills' No. 3, 12-14-11, sd 300 ft.

Kern: Arvin—Petrex's Petrex 1, 32-31-30, casing cemented 5099 ft. Union's Berry 1, 15-31-29, flowed 24 bbls daily 6812 ft. **Beiridge**—F. E. Abbott's No. 1, 18-27-19, rig. General Petroleum's St. Helens 1, 12-28-20, pumping 20 bbls daily 8683 ft. **Buena Vista**—Ohio's KCL A8, 32-31-26, preparing to test 11,186 ft. **Devil's Den**—Amerada's Beer 5, 22-26-19, redrilled 8298 ft. Gibson's Alferitz 3, 14-25-18, dr 600 ft. George Goodrum's Baron 1, 24-25-18, sd 1210 ft. H. L. F.'s No. 1, 25-25-18, sd 88 ft. **Dominion**—Master Petroleum's Recovery 3, 33-26-28, estimated 14 bbls daily 1600 ft. Section 34-26-28, U. S. 1, grading lcn. **Edison**—Ray W. Stevens' No. 1, 22-30-30, dr sand and gravel 658 ft. **Elk Hills**—Richfield's KCL-Western 1, 32-30-25, lcn. **Fruitvale**—Texas Co.'s Camp-West-Lowe 1, 7-29-27, dr hard sand and shale 5132 ft. Continental's KCL B-2, 12-29-26, rigging up. **Grapevine-Wheeler Ridge**—Petrol's Reserve-Petrol 33-5, 33-11-19, preparing to test 4598 ft. Richfield's KCL 1, 28-11-20, dr hard brown shale 4189 ft. Wilshire's Tejon 34-1, 34-11-19, rig. **Lamont**—Rollo Brinkman's Sexton 1, 11-31-28, grade. **Lerdo**—Standard's KCL 18-1, 29-28-26, dr hard sandy gray shale 9190 ft. **McFarland**—Tide Water Associated's Pond 1, 17-26-25, dr sand and shale 6207 ft. Shell's KCL 83-35, 35-26-25, dr shale, streaks sand 8288 ft. **McVan**—Bargol's Claflin 2, 10-27-27, sd 2169 ft. Desert Glow's No. 3, 14-27-27, rig. Framac's Brown 3, 22-27-27, recemented, dd 1355 ft. **Poso Creek**—Harkness & Laws' Hunt 1, 28-27-27, foundation. Reynolds' No. 1, 30-27-27, sd 2854 ft. **Richgrove**—Dilamar's Quinn 1, 15-25-27, co 2956 ft. **San Emigdio**—Shell's KCL 1A4, 26-11-22, redrilling 9825 ft. **Strand**—Continental's KCL E-1, 17-30-26, dr sandy shale 8427 ft. **Wasco-Semitropic**—Continental's KCL A-3-8, 8-27-24, dr shale and sand 7000 ft. Seaboard-Associated's KCL C-1, 26-27-24, dr shale streaks sand 11,830 ft. Standard's Mushrush 1, 7-27-24, dr sandy blue shale 3000 ft. Standard's KCL 8-B-1, 17-27-24, dr gray shale 7700 ft.

Kings: Dudley Ridge—Falcon Oil's Josephine 2, 24-23-20, sd 6499 ft. **Pyramid Hills**—Pyramid Production's Retherford 1, 27-24-18, sd 3090 ft.

Tulare: Ducor—Nelson & Davison's Muller 1, 1-24-27, sd 378 ft. **Alpaugh**—Sullivan & Youngdahl's No. 1, 33-23-23, dd 2732 ft. **Trico**—Caminol's AOG 3, 29-24-24, dd 7555 ft.

Santa Barbara: Carpinteria—Carpinteria's No. 1, 32-4-25, sd 2375 ft. **Carreaga**—Douglas-Stratton's No. 1, 8-8-33, dr brown shale 5931 ft. **Casmalia-Cat Canyon**—Standard's Los Flores 1, 27-9-33, redrilled 5403 ft, td 5529 ft. Southern California's Houk 1, 9-9-33, sd 5002 ft. **Coal Oil Point**—South Crude's Permit 191-2, 24-4-29, redrilling 3571 ft, td 5510 ft. **Gaviota**—Gaviota's Hollister 1, 35-5-33, small oil show 3215 ft. Wilshire's Hollister 1, 35-5-33, formation test wet 4600 ft. **Gato Ridge**—Barnsdall's Magenheimer 5, 9-8-32, lcn. Barnsdall's Tognazzini 3, 9-8-32, dr brown shale oil show 2612 ft. O. C. Field's Continental 3, 9-8-32, rig. **Lompoc**—J. E. O'Donnell's Helen 1, 8-7-33, dr hard gray shale 3861 ft. **Los Olivos**—United Western's Bradley 1, 15-7-30, sd 3279 ft. **Orcutt**—Warren Deuel's Garrett 1, 12-9-34, rig.

San Luis Obispo: Elkhorn—California Petroleum's Job 1, 6-10-24, dr gray sand 1917 ft. Western Plains' Bell 1, 7-31-21, sd 4010 ft. Western Plains' Bell 2, 2-32-21, sd 2620 ft. **Edna**—Loma Grande's Luis 1, 28-31-13, rig. **Huasna**—Hancock's Scherer-Dickes 1, 30-12-33, dr hard shale 3875 ft.

Ventura: Moorpark—Darby's A. B. Cohn 1, 7-2-19, dr hard shale 2520 ft. **Oxnard**—Walter G. Rowe's L. Johnson 1, 15-1-22, sd 4705 ft. **Ojai**—High Mesa's Butcher 1, 16-4-22, sand and shale 1690 ft. Holly Development's Macrate 1, 27-4-23, dr sand and shale 523 ft. St. Louis' Pirie 1, 18-4-22, pumping 15 bbls daily 2710 ft. **Sespe**—Condor's Dorman 1, 6-4-19, sd 2195 ft. Claran's Hardison 1, 22-4-20, sd 410 ft. Garmack's Orcutt 1, 28-5-19, sd 565 ft. La Salle & Van Dissen's No. 1, 17-5-19, grade. McDonald's No. 1, 5-5-19, lcn. Charles R. McKinnis' Cosley 1, 14-4-19, rigging up. Merchants' Cochrane 8, 1-4-20, dr shale 700 ft. St. Louis' Williamson 1, 1-4-20, sd 2650 ft. Sespe's No. 1, 1-4-20, sd 2650 ft. Speik's Speik 1, 33-5-19, sd 3440 ft. George Terry's No. 1, 23-5-20, sd 1340 ft. **South Mountain**—Albatross' Scheiferle 1, 17-3-20, rig. Clipper's Calco 1, 17-3-20, rig. Texas Co.'s Yale Richardson 5, dr gray sand 5766 ft. **Tar Creek**—Section 20's No. 1, 20-5-19, reaming 1611 ft. **Timber Canyon**—J. W. Martin's Arnett 1, 15-4-21, dr hard shale 1479 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
bs—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

FLORIDA

Levy—Fla. Oil Discovery Co.'s Sholtz 2, sw sw ne 9-15s-13e, arr deepen 3010 ft. **Nassau**—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw nw se 19-4n-24e, elev 110 ft, 6⅝ in csg 3935 ft, dr 4489 ft. **Polk**—Edw. A. Hill's Polk County Lbr. Co. 1, nw nw ne 32-25s-25e, dk. **Suwannee**—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, sd for heavier rig, td 200 ft. J. W. Phillips Oil Explorations' Shilkett 1, nw nw 14-4s-14e.

ILLINOIS

Bond—Farrely's Kyle 1, sw nw nw 28-4n-4w, dr 60 ft. Huppard et al's Dresser 1, sw ne nw 21-6n-4w, sft sd 1415 ft. **Clark**—Watkins et al's Wise 1, se 24-1n-3w, sd. **Clay**—Gordon et al's Cannon 1, c nw se se 32-3n-5e, dr 2845 ft. Kingwood's Graham 1, c s-sw ne 13-3n-6e, 500 bbls td 2985 ft. Carter's Cox 1, c se se sw 14-4n-5e, abd 4345 ft. **Clinton**—Heldt's Lampin 1, sw se nw 16-1n-2w, dr 1440 ft. Schlafly's Brinkman 1, nec nw 31-1n-2w, dr 900 ft. Phelps' Dodillet 1, se nw sw 26-1n-1w, dr 850 ft. Hausman et al's Nothaus 1, nec 23-2n-2w, mim. Wilson et al's Goesling 1, c w½ nw se 35-2n-2w, dr 965 ft. Fagerburg et al's Quinn 1, se ne nw 27-2n-1w, dr 250 ft. Sappington et al's Hilgemann 1, se ne nw 22-3n-3w, ru. **Christian**—Omdemdemt's Warren 1, swc 23-11n-131e, sd 1595 ft. **Crawford**—Hastings et al's Athey 1, c n½ ne ne 18-6n-12w, dr 2185 ft. **Dewar**—Leach Bros.' Lee 1, sw ne se 11-1s-10e, dr 3290 ft. **Effingham**—Kingwood's McWhorter 1, e- se nw 15-6n-6e, fsg 5823 ft. Kingwood's Stroble 1, nw sw ne 22-7n-4e, dk. **Fayette**—Iroquois' Wills 1, ne sw se 6-8n-3e, dr 100 ft. Babcock et al's Dean 1, c sw nw se 27-8n-3e, co td 1599 ft. Columbus' Tish 1, c nw nw se 3-8n-3e, sd for tanks, td 1575 ft. Whisenant's Zanders 1, c sw se nw 36-9n-3e, sd 1672 ft. **Gallatin**—Siegel et al's Choisser 1, ne nw nw 5-8s-7e, ru and sd. **Jasper**—Obermayer's Atkins 1, nw nw ne 3-6n-9e, sd 2708 ft. **Madison**—Kennedy et al's Eisenmeier 1, ne ne se 3-2n-5w, dr 1355 ft. **Marion**—Cole et al's Kuester 1, 5-1n-1e, co 290 ft. Somers et al's Lancaster 1, se nw nw 16-1n-1e, tst td 1668 ft. Texas' Tate 1, c w½ e½ nw nw 5-1n-2e, tst td 1915 ft. Dalton's Clifton 1, ne sw sw 15-1n-4e, dr 2580 ft. Morrison's Rittinghouse 1, sw ne se 19-2n-1e, spd. Dalton Oil's Wesner 1, sw sw nw 24-2n-1e, spd and sd. Siegel's Roddy 1, se se sw 20-2n-3e, sd 2207 ft. Conrey et al's Hight 1, nw nw sw 5-3n-2e, ru. Marion Oil's Wilson 1, ne ne se 18-3n-3e, dr 2025 ft. **Massac**—Kahle et al's Harvick 1, swc 23-14s-3e, sd repairs, td 2875 ft. **Randolph**—Cain et al's Smiley 1, se se ne 31-4s-5w, sd 100 ft. **Richland**—Shamrock's Alvord 1, c sw se ne 33-3n-9e, spd. **Saline**—Bailey et al's Logan 1, se ne ne 21-8s-6e, ru, Bolton's Beagle 1, nw nw ne 13-9s-7e, sd td 2601 ft. Whitlock et al's Anthis 1, nw nw ne 12-11s-5e, sd 1730 ft. **Shelby**—National Consumers' Harrison 1, ne se nw 17-9n-9e, rng 12-in 104 ft. Jolly et al's Jenkins 1, sec 26-10-4e, spd. **St. Clair**—Hawks et al's Collins 1, c ne ne se 24-1s-9e, dk. **Wayne**—Weinert's Twist 1, ne nw sw 33-2s-7e, dr 2010 ft. **White**—Hunt et al's Smith 1, nw se sw 11-5s-8e, dr 150 ft. Palmer's Ziegler 1, sw nw se3-5s-9e, dr 3385 ft. Arab's Doerner 1, sec 12-7s-8e, dk. **Williamson**—Geological Synd's Scott 1, sw se sw 4-10s-2e, dr 910 ft.

KANSAS

Barton—Sinclair Prairie's Frederick 1, swc se 16-16-11w, pb 333 td 3336 ft, 58 bbls oil and 212 bbls water 6 hrs Arbuckle lime. Day et al's Feltes 1, sec ne 14-16-12w, sd 1875 ft. Gardner et al's Drug 1, swc se 16-16-13w, ru. Price et al's Wondra 1, nwc ne 10-17-12w, pot 539 bbls oil 20 percent water, Arbuckle lime, top 3329, td 3343 ft. Armer et al's Seyfert 1, nw sw ne 3-17-13w, woc td 3399 ft. Western Kansas et al's Linsner 1, swc se 3-17-13w, woc td 3367 ft, Colonial's Lust 1, nwc ne 12-17-13w, dr 2175 ft. Atlantic's Sullivan 1, ne se sw 29-17-13w, pb 3200 ft, td 3398 ft, co. Crown's Wolfe 1, se sw se 36-19-17w, dr 2850 ft. **Butler**—Steinbuchel et al's Fox 1, nw se ne 25-26-3e, dr 2270 ft. Rex et al's Newby 1, swc se 16-26-7e, dr 1800 ft. National's Wentz 1, se ne nw 7-27-6e, lcn. Heilman et al's Sawyer 1, se ne ne 10-28-7e, dr 1400 ft. **Cowley**—Smith et al's Wilson 1, se sw nw 9-33-6e, est 60 bbls to shoot, td 3149 ft. Milton et al's Hunt 1, swc ne 16-34-5e, dr 100 ft. Hutchinson Kitchen 1, sw se se 11-35-5e, sd 3200 ft. **Ellis**—Cities Service Hall 1-C, c el w-ne 35-11-17w, dr 2295 ft. **Ford**—Sinclair Prairie's Young 1, c sl ne 34-27-21w, to pb to

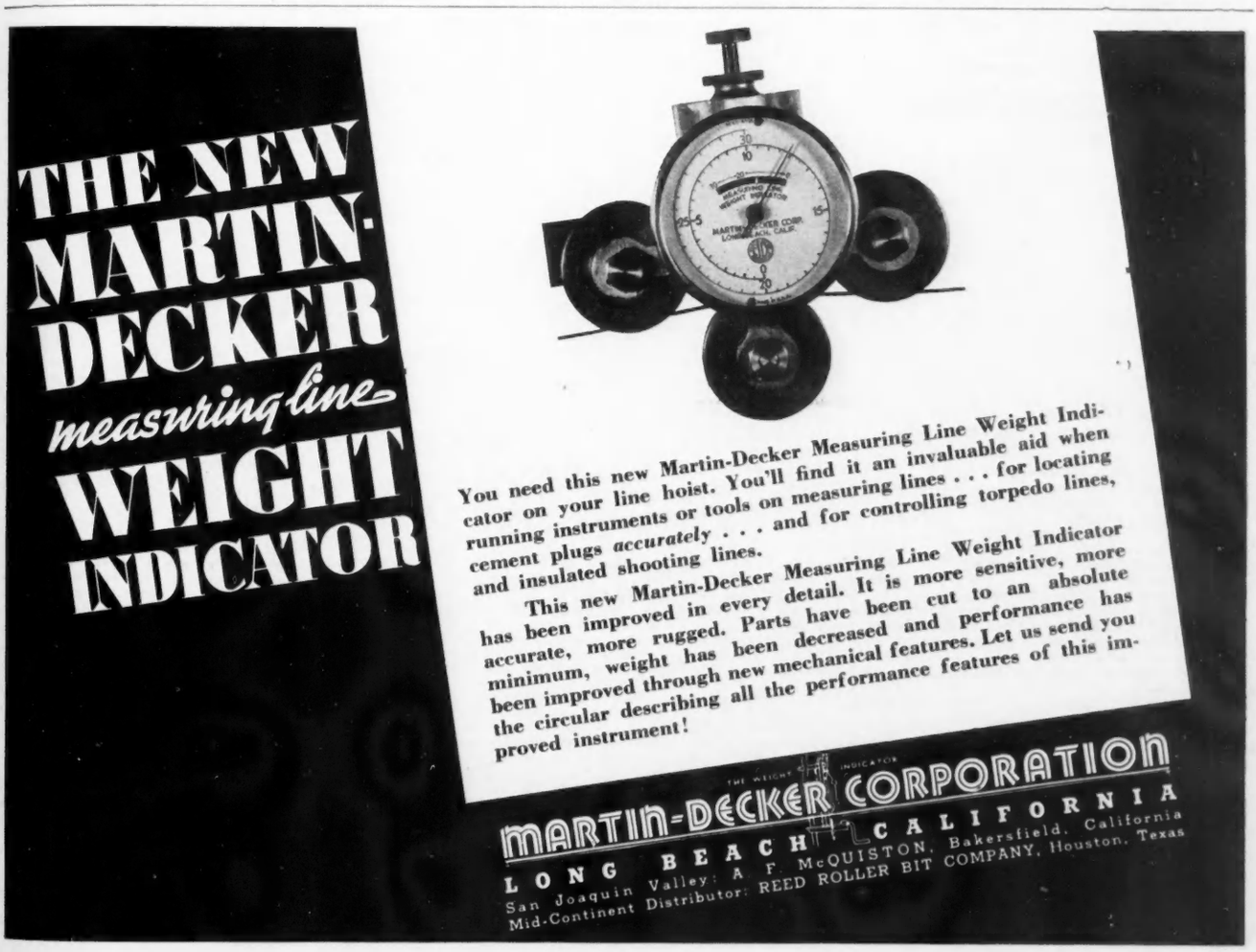
test Mississippi lime, td 5930 ft. **Geary**—Midland's Gfeller 1, c nw nw 6-12-5e, lcn. **Graham**—Schlemeyer's Belveal 1, c se nw 3-8-24w, lcn. **Greenwood**—Nichols et al's Central Life 1, se sw 35-25-12e, ru. Fullerton et al's Bates 1, ne sw se 3-26-11e, ru. Whittaker et al's Bressner 1, nwc se 8-26-13e, sd td 1498 ft. Smalley et al's Samples 1, se nw ne 15-26-13e, ur td 1146 ft. **Jackson**—Haverback et al's Marble 1, c ne ne 26-9-14e, sd 2588 ft. **Lane**—Phillips' Kees 1, c se se 3-19-30w, lost circulation, td 4911 ft. **Ness**—Jones et al's Page 1, sec nw 36-16-26w, sd 3270 ft. **Ottawa** Babcock's Copeman 1, c sw se 7-10-2w, dr 260 ft. **Pottawatomie**—Turner et al's Umshide 1, c ne nw 32-8-9e, lcn. **Pratt**—Tide Water's Jarboe 1, c nl se 25-26-14w, dr 4170 ft. **Rice**—Carlock et al's Heinz 1, nw se 8-18-10w, ru. Cities Service's Gibson 1, sw se ne 10-18-8w, ru. Shell's Cramm 1, c nl ne 15-19-9w, dr 1930 ft. **Riley**—Coronado et al's Parks 1, sec 16-10-8e, ur td 1300 ft. **Rooks**—Haun's Gravenhorst 1, sec 7-6-16w, mit. Producers et al's Ham 1, swc nw 25-7-19w, dr 1425 ft. Haines et al's Dorr 1, sec sw 13-9-16w, dr 600 ft. Graham et al's Fike 1, swc 9-9-17w, sd td 3507 ft. Hall's Druse 1, se sw 3-10-16w, dr 2210 ft. Elwell et al's Bair 1, se nw 34-10-19w, lcn. **Rush**—Kessler et al's Dirks 1, nw ne 14-20-16w, cor 3800 ft. **Russell**—Smith's Stielow 1, nwc 32-11-14w, sd 2550 ft. Phillips' Miller 1, c nw sw 29-13-14w, sd for csg, td 3311 ft. Coralena's Hafferman 1, ne se sw 34-13-14w, dr 2900 ft. Aylward's Solbach 1, se ne 31-14-14w, dr 1100 ft. Shields' Rogg 1, c el w-nw 9-15-13w, dr 250 ft. Southern's Sellens 1, ne sw sw 17-15-13w, dr 350 ft. Web-Son's Baxter 1, nw se 4-15-15w, dr 3345 ft. **Sedgwick**—National's Trustee 1, se ne 8-27-2e, dr 2350 ft. Hudson et al's Fulton 1, ne se 35-28-1e, woc td 2283 ft. Union's Howell 1, swc 6-29-1e, abd 3790 ft. Crowe et al's Murphy 1, sw se 34-29-1w, rig. **Stafford** — Western Kansas' Barnes 1, nwc 8-21-12w, mit. Boone et al's Schilling 1, nw ne 20-21-12w, cellar. Barner et al's Knapp 1, se sw nw 27-22-14w, sd 555 ft. Atlantic's Wise 1, nwc 13-24-14w, lcn. Austin's Slade 1, ne nw 35-25-12w, sd 3672 ft. **Sumner**—Hapenney et al's Evers 1, se ne 27-21-2e, woc 2030 ft. **Woodson** — Phil-Han's Evans 1, ne sw 21-23-15e, woc td 1545 ft. Cyr Gas et al's Schreiber 1, se sw se 8-25-14e, sd 900 ft. Trott's O'Neal 1, sec 21-25-14e, dr 100 ft. Steinbuchel's States 1, nw ne nw 15-26-14e, dr 450 ft. Cohen et al's Pendlay 1, nw sw 5-26-15e, dr 1675 ft. Hill et al's Kelley 1, nw se sw 17-26-15e, dr 1495 ft. McGinnis' Hill 1, c sw se 32-28-15e, abd 1340 ft.

NORTH LOUISIANA

Bienville—DeSoto O&G Co.'s Wm. Ashley 3, c nw se 15-16n-10w, rog. Mrs. B. A. Fleming 1, nw nw 18-16n-9w, rog. Gulf's Goodpine Oil Co. 1, se sw 25-14n-8w, elev 157 ft, massive anhydrite 5303-5420 ft, top lower Marine 9650 ft, dr 10,685 ft, hd gray sand. **Bossier**—Lloyd & Sloan's B. A. Sherrill 1, se se 12-19n-12w, sd 785 ft. **Caddo**—R. E. Allison et al's Ellerbe et al 1, sw nw 27-18n-14w, elev 173 ft, 13⅜ in csg 229 ft, 9⅝ in csg 2048 ft, top red beds 2448 ft, top anhydrite stringer 4070 ft, massive anhydrite 4332-4610 ft, coring 5625 ft, hd lime. Oils, Inc.'s A. Cazaux 1, sw sw 16-16n-13w, elev 205 ft, 10 in csg 300 ft, dr 1318 ft lime and shale. **Caldwell**—Oakes et al's Kyles 1, sw ne 18-11n-3e, woc 470 ft. G. W. Zeigen's La. Cent. Lbr. Co. 14, sw sw 20-14n-3e, spd. **Catahoula**—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, sd 620 ft. **Claiborne**—E. T. Oakes et al's Kilgore 1, ne se 28-21n-5w, elev 288 ft, 5¾ in cs 5290 ft, logged saturated lime 5297-5305 ft, and 5307-12 ft, ran tubing, swabbing so, sg, td 5357 ft (corrected depth). J. N. Buchanan et al's Miller Est. 1, ne sw 11-20n-8w, rur. Weaver Oil Corp.'s Edmonds 2, sw ne 16-20n-5w, elev 209 ft, base massive anhydrite 4370 ft, top Travis Peak 5600 ft, logged so 5475-83 ft, dry abn, td 5852 ft. Union Prod. Co. et al's Rufus Sims A-1, sw sw 29-20n-5w, dr 1565 ft. **DeSoto**—S. S. Alexander's Stell 1, ne ne 5-12n-16w, elev 245.6 ft, perf csg 5150-5440 ft, flowed est 50 to 60 bbls oil day, pb and perf 4100 ft, old td 6002 ft. S. P. Taylor's Barnhart 1, ne se 20-14n-12w, mim. M. L. Stephens' M. E. Garrett 1, nw ne 10-11n-16w, mim. La. Seaboard's Lawrence 1, sw ne 36-12n-14w, elev 332 ft, tested so 2062 ft, tested dry 2822 ft, arr deepen. G. H. Collins et al's Joyner 1, sw ne 28-11n-12w, fsg, junked hole 2859 ft, skid over for new hole. **Grant**—C. L. Thompson et al's Woodward 1, ne sw 10-6n-3w, top Wilcox 2867 ft, move in heavier rig to deepen, td 4527 ft sandy shale. C. R. Bowers et al's Harrison 1, ne sw 21-8n-5w, spd and sd. **Madison**—Continental Oil Co.'s Singer Mfg. Co. 1, n½ ne nw 3-15n-11e, rur. **Morehouse**—Hunter & Rowe's E. M. Clarke 1, sw ne 10-20n-7e, elev 103 ft, top lime 6218 ft, arr deepen 7022 ft. **Natchitoches**—Jos. E. Popkins' Peavy-Wilson 1, nw se nw 36-7n-9w, sd 300 ft. W. T. Ryan et al's Lambert 1, nw nw 4-8n-9w, sd 4189 ft. Raines Bros.' Allen Plantation 1, ne sw 22-10n-9w, fsg 1250 ft. **Rapides**—E. F. Kalb et al's Lee Lbr. Co. 1, nw sw 9-5n-3w, mim. **Red River**—Glassell & Whitehurst's LeLong 1, ne nw ne 25-12n-11w, sd 3113 ft. **Sabine**—W. L. McClanahan et al's Frost-Johnson 1, se ne sw 22-9n-13w, elev 196.2 ft, top Nacatoch 1531 ft, top Saratoga chalk 1578 ft, Annona chalk 1816-2041 ft, dr 4150 ft lime and shale. H. M. Sneed et al's Leone 1, nw se 8-7n-13w, rur. J. G. Sutton-Zwolle Oil Co.'s Bowman-Hicks 1, w½ sw se 14-7n-14w, lcn. Bowman-Hicks 2, w½ sw nw 24-7n-13w, lcn. Albert Reich et al's Giaque 1, ne se ne 27-7n-14w, dr 3210 ft. F. W. Martin & Co.'s Sabine 1, c w½ ne ne 23-7n-14w, 9⅝ in csg 2150 ft, pb 3600 ft, old td 4500 ft. Sabine 2, c e½ ne ne 23-7n-14w, rog. Lee Whitehurst et al's Bowman-Hicks 1, se se 14-7n-14w, top chalk 2105 ft, arr set 9⅝ in csg 2125 ft. A. Boykin King's Sabine 1, c nw nw 19-7n-13w, dr 2775 ft. Sabine 1-A, c w½ nw nw 19-7n-13w, lcn. Sabine 2, c sw nw 19-7n-13w, lcn. **Tensas**—H. B. Schumacher's Mounds Land Co. 4, irreg section 39-11n-12e, top Cockfield 1025 ft, tested sw 1025-48 ft, dry abn, td 2450 ft. **Union**—Joe Modisett et al's Frost Lbr. Co. 1, ne sw 14-21n-1e, elev 188 ft, top lower Marine 6161 ft, top pink anhydrite 9060 ft, top Permian lime 9612 ft, coring sand strks hd shale 9773 ft. Standard of La.'s Frost Lbr. Co. 1, c sw sw 13-23n-2w, lcn. **Webster**—W. M. Chamber's Thomas 1, se se 11-22n-11w, rur. Magnolia's Pardee Co. 1, ne nw ne 17-23n-11w, spd. H. M. Branton 1, ne ne 6-22n-9w, rur.

SOUTH LOUISIANA

Calcasieu—Sun's Lutcher Moore 1, Northwest Starks, 1-8s-13w, abn 9480 ft. Union Sulphur's Drew Mineral 1, s of Edgerly, 4-10s-11w, dr shale and lime 6698 ft. **Cameron**—Humble's Katherin B. Hanszen 2, Chalkley, 9-12s-6w, dr shale 8705 ft. Pure's Calcasieu National Bank 1, n of Mallard Bay, 18-12s-4w, dr lime 4216 ft. Ash Robinson's Mermentau Land 1, Little Cheniere, 30-14s-6w, running electrical logging device 6530 ft. **Iberia**—Texas Co.'s State 2-B, in Vermilion Bay, 16s-5e, capped 9667 ft. **Jefferson**—J. Szodomka's Carroll 1, n of New Orleans, 125-12s-11e, repairing rig 4700 ft. **Jefferson Davis**—Continental's J. Sturdivant 1, South Roanoke, 36-10s-4w, dr shale 9817 ft. **Lafourche**—Sun's Dibert, Stark and Brown 1, Chacahoula salt dome, 70-15s-15e, dr shale 1700 ft. Texas Co.'s La Terre 1, Golden Meadows, 1-20s-21e, dr sand 5846 ft. **Orleans**—W. T. Burton's State 1, in Lake Ponchartrain, 10s-13e, ru. **Plaquemines**—Gulf's Grand Prairie Levee District 1-A, Bird Island, 6-20s-19e, running electrical logging device 6151 ft. **St. Bernard**—Gulf's State RR 3, Lake Borgne, 6-12s-15e, dr shale 10,698 ft. **St. James**—Continental's


THE NEW
MARTIN-DECKER
measuring line
WEIGHT
INDICATOR
You need this new Martin-Decker Measuring Line Weight Indicator on your line hoist. You'll find it an invaluable aid when running instruments or tools on measuring lines . . . for locating cement plugs accurately . . . and for controlling torpedo lines, and insulated shooting lines.
This new Martin-Decker Measuring Line Weight Indicator has been improved in every detail. It is more sensitive, more accurate, more rugged. Parts have been cut to an absolute minimum, weight has been decreased and performance has been improved through new mechanical features. Let us send you the circular describing all the performance features of this improved instrument!
MARTIN-DECKER CORPORATION
LONG BEACH CALIFORNIA
San Joaquin Valley: A. F. McQUISTON, Bakersfield, California
Mid-Continent Distributor: REED ROLLER BIT COMPANY, Houston, Texas

W-S FORGED STEEL FITTINGS

- *On pipe lines carrying oil or gas at high pressures or temperatures, use W - S Forged Steel Fittings.*
- *Having a uniform factor of safety, W-S Fittings can be relied on for longer and more dependable service.*
- *Write for complete information or get in touch with your supply house.*

THE WATSON-STILLMAN CO.
ROSELLE, NEW JERSEY

COMPREHENSIVE INDEX

of the

PUBLICATIONS OF
THE AMERICAN ASSOCIATION
of
PETROLEUM GEOLOGISTS
1917-1936

By

DAISY WINIFRED HEATH

A.A.P.G. PUBLICATIONS INDEXED

(20 Years of Geology of Oil and Gas)

The Bulletin, Volume I to Volume XX	1917-1936
Geology of Salt Dome Oil Fields (out of print)	1926
Theory of Continental Drift (out of print)	1928
Structure of Typical American Oil Fields, Volume I (out of print)	1929
Structure of Typical American Oil Fields, Volume II	1929
Stratigraphy of Plains of Southern Alberta	1931
Geology of California (out of print)	1933
Problems of Petroleum Geology	1934
Geology of Natural Gas	1935
Geology of the Tampico Region, Mexico	1936
Gulf Coast Oil Fields	1936
Structural Evolution of Southern California	1936

382 pp., free to members. Non-members, individuals, companies, and institutions may buy copies at $3.00, postpaid.

THE AMERICAN ASSOCIATION
OF PETROLEUM GEOLOGISTS

Box 979

Tulsa, Oklahoma, U.S.A.

Colonial Sugar 1, Convent, 46-12s-5e, **woc** 2500 ft; same operator's Realty Operators 1, Convent, 17-12s-5e, pulling stuck drill stem 7499 ft. **St. John The Baptist**—Shell's Godcheaux Sugar 1, La Place, 97-11s-7e, dr clay 100 ft. **St. Martin**—Shell's Jeanerette Lbr. Co. Co. 1, Lake Verrett, 14-14s-12e, dr shale 9300 ft. Texas Co.'s St. Martin Land Co. 1, Henderson, 21-8s-7e, dr water sand 7367 ft; same operator's State 6, Lake Mongouloui, 10-10s-9e, ru. **Terrebonne**—Barnsdall's Barrow Estate 1, n of Bourg, 41-17s-18e, dr shale 5308 ft. Fohs' Buckley Bourg 1, West Dulac, 77-19s-17e, comp 125 bbls distillate daily 13,266 ft; same operator's State 1, La Terre area, 41-19s-19e, dr shale 13,260 ft. Shell's Peters 1, se of Houma, 73-18s-18e, dr shale 6370 ft; same operator's Realty Operator's C-1, Minor, 10-18s-16e, dr shale 8516 ft. Texas Co.'s Caliou Bay 1, n of Raccoon Point, 23s-14e, lcn. **Vermilion**—Magnolia's Ferguson 1, West Gueydan, 5-12s-2w, testing 7130 ft. **Vernon**—W. T. Burton's Gulf Lbr. Co. 1, Fullerton area, 15-1n-6w, woc 875 ft.

MICHIGAN

Allegan—McIntosh's Shanz 1, 14-1n-14w, 10 in 105 ft, dr. Caldwell, Inc.'s Gosling 1, 10-4n-12w, rust. Sutherland's Klein 1, 10-3n-14w, dr 890 ft. Chulski's Tuttle 1, 22-3n-12w, Traverse 1718 ft, so 1722 ft, sd. United Pet.'s Low 1, 24-1n-15w, lcn. Shimmel's Saugatuch 1, 28-3n-15w, lcn. Hubbel Oil's MacVean 1, 19-2n-11w, rig. **Barry**—Collin's Simmon 1, 3-4n-10w, rust 1315 ft. **Cass**—Guy Obenauer's Neel 1, 6-5s-14w, co 295 ft. **Clare**—Higelmire trustee's Van Horn 1, 3-18n-6w, Traverse 3248 ft, so&g 3378, dr 3399, shale and lime. Gulf's A. A. 1, 21-18n-5w, dr 1147 ft. **Clinton**—McDonald's Koeppen 1, 19-6n-3w, rust. **Gladwin**—Smith Pet.'s Nash 1, 28-20-2w, dr 990 ft. **Gratiot**—Michigan Chemical's Fee 9, 24-12n-3w, dr 1600 ft. **Lakeland** Refiner's Munson 1, 26-10n-3w, rust. Victory's Thum 1, 13-10n-4w, rust. **Huron**—Leonard's Milling Co. 1, 10-16n-15e, sd 1945 ft. **Mackinac**—Van Kuren's Hiawatha Club 2, 5-44n-9w, dr 180 ft. **Mecosta**—Daily Crude Oil's Thrush 1, 25-16n-7w, rust. Mitchell's Blodgett 1, 22-13n-10w, 5 in csg 3316 ft. **Midland**—Sun's State A-2, 3-15n-1w, Dundee 3718 ft, sd 3888 ft, 1500 ft water; State B-1, 9-15n-1w, Dundee 3672 ft, Monroe 3830 ft, dr 4568 ft. **Missaukee**—C. W. Teater's Gray 1, 32-23n-5w, dr 410 ft. **Monroe**—Sun's Clampitt 1, 28-8s-6e, dr 990 ft. **Osceola**—Champion's Ealy 1, 30-20n-8w, rust. **Otsego**—Summer's Geraldine 1, 28-30n-3w, rust. Barton & William's Yuill 1, 9-32n-3w, sr 1400 ft. **Shiawassee**—T. K. Buzard's McCall 1, 11-6n-3e, rig. **Tuscola**—Meredith's Sand Co. 1, 32-11n-8e, sd 2390 ft. **Van Buren**—Daily Crude's Wise 1, 26-3s-13w, rig. **Wayne**—Bellville's Scheffler 1, 26-3s-8e, dr 2360 ft. **Wexford**—Shrack's Fee 1, 17-22n-9w, Dundee 3740 ft, so 3890 ft, sd.

MISSISSIPPI

Calhoun—L. C. Lucas' B. C. Boland 1, sw sw 9-22n-9e, dk. S.&O. Properties, Inc.'s G. C. Cooner 1, se ne 12-24n-8e, sd 2120 ft. **George**—Cleve Love et al's J. J. Newman Lbr. Co. 2, c sw 9-1s-8w, elev 111 ft, 10-in csg 1374 ft, top Het 1382 ft, sd 1400 ft. **Hinds**—Cleve Love et al's Montgomery 1, sw se se 28-6n-4w, lcn. S. F. Johnson 1, ne se 29-6n-1w, elev 345 ft, top black shale 3040 ft, top chalk 3097 ft, top Eutaw 3617 ft, top red beds 3657 ft, 7-in csg 3355 ft, sd 3707 ft. Progressive Realty Co. 1, se sw 35-6n-4w, top Wilcox 2750 ft, dr 5515 ft, calcite. **Lamar**—Southern Miss. Pet. Corp.'s Morris 1, n.w se 4-2n-14w, elev 332 ft, top Het 1138 ft, 10-in csg 1144 ft, top Vicksburg 1615 ft, top Minden lime 2123 ft, top Wilcox 2735-53 ft, sd 3029 ft (Wilcox). **Montgomery**—Dr. T. A. Chichester et al's E. C. Mitchell 1, se nw sw 30-20n-7e, dk. **Pontotoc**—Waldrop, Melvin & Waldrop's Bray 1, sec n½ sw 17-11s-1e, woc surf csg 166 ft. **Simpson**—Goodwill O&G Co.'s Berry 1, se sw 33-2n-4e, elev 307 ft, sd 2810 ft gray gumbo. Cleve Love et al's N. E. Garner 1, sw ne 1-10n-17w, arr set surf csg. **Yalabousha**—Acme Holding Co.'s Boyle 1, nw nw 33-25n-7e, sd 1690 ft, shale and pyrites.

OKLAHOMA

Beckham—Mid-American's Biscoe 1-A, swc 28-8n-22w, sd 2765 ft. **Choctaw**—Ross et al's Hardy 1, se se nw 21-7s-13e, dr 900 ft. **Cleveland**—Hollenbach et al's Mantooth 1, nwc 24-6n-1e, rig. **Creek**—Mosier et al's Holcomb 1, se sw nw 19-18n-8e, sd 3018 ft. **Garfield**—I. T. I. O.'s Kichin 1, c se se 17-22n-5w, dr 1650 ft. Kendall et al's State 1-A, swc 13-23n-3w, sd 1070 ft. Champlin's Boehm 1, sw sw ne 4-24n-8w, sd 950 ft. **Grady**—Henry et al's Thomas 1, nec 9-5n-7w, lcn. **Hughes**—Marbett's Breeding 1, 12-7n-8e, sho oil 1084-94 ft sd. Doup et al's Bond 1, nec sw 7n-7-9e, sd 1050 ft. Phillane's Morrison 1, sec sw 13-9n-10e, flowed 40 bbls one head, pb 4036, td 4214 ft. **Jefferson**—Massad et al's Barrett 1, ne se se 14-6s-6w, sd 1890 ft. **Kay**—Westgate et al's Willin 1, se se sw 24-27n-4w, abd 3048 ft. Helmerich & Payne's School Land 1, sw se sw 16-28n-1w, coring 3536 td. Ross et al's Morhain 1, ne ne nw 30-22n-7e, rig. **Kiowa**—Hughes et al's Fultz 1, sec 10-6n-18w, dr by tools, td 1238 ft. Anderson-Prichard's School Land 1, c se se se 14-6n-17w, dr 1100 ft; Cribbs 1, sec ne 28-7n-19w, dr 1790 ft. **Lincoln**—Indian States' Bailey 1, ne nw nw ne 2-12n-5e, fsg 2995 ft. **Logan**—Superior's McCulley 1, c wp nw nw 26-16n-4w, dr 3350 ft. **Love**—Sinclair Prairie's Peabody 1, nec 35-6s-2w, pb to 5585 ft to dr by pipe. **Murray**—First National's Butterly 1, ne ne se 22-1n-1e, sd 1594 ft. **Noble**—Hollenback et al's Mathews 1, c sw nw 9-20n-1e, rig. Big Chief's Hoy 1, se se sw 33-21n-2w, dr 1150 ft. **Oklahoma**—Fain et al's Little 1, sw sw ne 28-11n-3w, rig. Olson et al's Vaneck 1, se sw nw 4-12n-3w, cellar. **Okmulgee**—Manhan's Kennedy 1, ne nw ne 31-14n-11e, dr 1325 ft. **Osage**—Chevalier et al's 1, nwc 33-27n-5e, sd 3168 ft. Wah-Sha-She's 1, ne ne sw 4-28n-9e, sd 1937 ft. **Pawnee**—Sinclair Prairie's McQuain 1, ne nw ne 22-19-1e, lcn. **Pontotoc**—Union's Abbott 1-A, sw nw ne 34-3n-6e, dr 2015 ft. **Pottawatomie**—Smith et al's Henderson 1, nw nw ne 4-5n-3e, dr 3410 ft. Farmers Mutual's School Land 1, se se nw 16-5n-5e, ru. Farmers Mutual's Waite 1, ne ne nw 9-5n-5e, bailing td 3234 ft. Atlantic's McCurry 1, nw se sw 6-6n-4e, rig. **Seminole**—Southern's Rainey 1, nw ne se 12-7n-5e, spd. Young et al's Edgeman 1, sec 17-7n-6e, sd repairs, td 2930 ft. McQueen's Harris 1, swc 30-7n-6e, dr 2170 ft. Titus' Lehmar 1, c ne ne 26-11n-8e, dr 1300 ft. **Washita**—McWhirter's Fee 1, nw sw sw 34-8n-19w, woc td 2147 ft.

WEST TEXAS

(This report is confined to the north portion of the Permian).

Andrews—Atlantic Ref. Co.'s University-Texas Co. 1, near c nw ne sec 26, blk 11, elev 3289 ft, top anhydrite 1455 ft, base salt 2680 ft, top Yates 2760 ft, dry and abd in sul w 4600-66 ft. S. H. Forgeron et al's Lockhart-Brown 1, c ne ne PSL sec 20, blk A-41, elev 3248 ft, top anhydrite 1660 ft, salt series 1690-2720 ft, top brown lime 3995 ft, used 2000 gals acid at 4483 ft, dd to 4584 ft, used 2000 gals acid swab little oil with bs&w. Frank S. Perkins et al's E. P. Cowden 1, c ne nw PSL sec 14, blk A-55, elev 3114 ft, top anhydrite 1162 ft, salt series 1250-2530 ft, top brown lime 2630 ft, top Yates 2710 ft, td 8012 ft, pb by stages to 7698 ft, dry and abd. R. R. Rhodes-J. D. Tompkins et al's Emma Cowden-Sinclair 1, ne ne nw T&P sec 1, blk 44, T-2-N, elev 3166 ft, top anhydrite 1630 ft, top Yates 2720 ft, top first lime 2810 ft, lime pay 4168-4220 ft, flows by heads, sd for acid. **Bailey**—Geo. Etz et al's I. C. Enochs Land Co. 1, c labor 66, league 182, Floyd C.S.L. sur, elev 3788 ft, top lime 3173 ft, dry and abd in water 4334 ft. **Cochran**—Devonian Oil Co.-Honolulu & Cascade Pet. Co.'s Duggan 1-C-8, nec labor 8, league 54, Oldham C.S.L. sur, elev 3647 ft, top anhydrite 2310 ft, top Yates 2920 ft, top brown lime 3860 ft, top solid lime 4237 ft, pay 5003-51 ft, used 3000 gals acid, swab and flows 6 bbls oil per hr. **Dawson**—Ray Albaugh et al's Dewey Hogg 1, c se se T&P sec 17, blk 34, T-4-N, elev 2895 ft, top anhydrite 1550 ft, fsh 4125 ft. **Floyd** — Mills Bennett Production Co.'s Thos. Montgomery 1, nec F. J. Latham sur No. 2, A-520, elev 3129 ft, top lime 3255 ft, lost dp at 5082 ft, pb to 3000 ft, dr by junk, dr lime and shale 5550 ft. **Gaines**—Eastland Oil Co.'s R. C. Dunbar-Stanolind, nw nw sw PSL sec 24, blk A-12, elev 3544 ft, top anhydrite 1620 ft, top Yates 2882 ft, top brown lime 3730 ft, top white lime 4325 ft, td 4640 ft, used 9000 gals acid, swabs little oil with acid water. J. T. Perryman et al's C. H. Doak-Pure 1, c nw ne D&W sec 43, blk H, elev 3165 ft, top anhydrite 215[illegible] ft, top salt 2190 ft, top Yates 3153 ft, dr 4650 ft. V. R. Riddle & Warr's J. B. Brown 1, c ne ne C&M sec 26, blk G, elev 3283 ft, top anhydrite 2316 ft, top salt 2352 ft, dr 4150 ft. **Garza**—Gulf Oil Corp.'s S. P. Swenson Cattle Co. 1, c nw H&GN sec 25, blk 2, Ordovician test, elev 2274 ft, dr 6219 ft. **Hockley**—E. T. Marion et al's P. F. Lawless 1, swc labor 58, league 39, Maverick C.S.L. sur, sd 88 ft. Skelly Oil Co.'s Ellwood 1, league 15, Howard C.S.L. sur, elev 3409 ft, dr 3200 ft. Sid W. Richardson et al's Slaughter 2, labor 58, league 39, Maverick C.S.L., cem sur cas. Penn Royalties, Inc.'s P. F. Lawless 1, near swc labor 58, league 39, Maverick C.S.L. sur, sd 85 ft. Stanolind's Alex Slaughter 2, swc labor 75, league 37, Zavala C.S.L. sur, top anhydrite 2218 ft, dr 4270 ft. **Kent**—B. Dolman et al's C. V. O'Keefe 1, ne ne nw H&GN sec 50, blk 1, sd 125 ft. **Lynn**—John L. Baldridge et al's Alamo Lumber Co. 1, ne sw sw HE&WT sec 151, 6 mi w New Home, elev 3267 ft, top anhydrite 2130 ft, top San Andres lime 4170 ft, cas trouble, sd 4455 ft. **Martin**—W. D. Anderson et al's J. R. Vance 1, c se T&P sec 9, blk 36, T-1-S, elev 2699 ft, top anhydrite 1510 ft, top salt 1595 ft, dr 2550 ft. **Terry**—L. E. Hults et al's P. J. Ross-Gulf 1, swc nw C&M sec 6, blk D-14, elev 3548 ft top anhydrite 2270 ft, top Yates 2940 ft, top brown lime 3970 ft, top solid lime 4170 ft, trace oil 5070-83 ft, dry and abd in sul w 5181 ft. **Yoakum**—J. L. Crump & Black Bros.' Bennett 1-B, ne nw nw sec 695, elev —— ft, pay 5085-5256 ft, shot 740 qts nitro 5055-5250 ft, flowed 2233 bbls 33.4 gravity oil initial. Fred M. Allison Prod. Co.'s Bennett 1, ne sw nw sec 695, elev 3554 ft, run cas, td 4621 ft. R. H. Gill et al's S. J. Dixon-Gulf 1, se se ne sec 611, blk D, rig. Gulf's L. K. Moore 1, sw ne

nw sec 897, blk D, dr 1356 ft. Magnolia's J. D. Webb 1, swc ne sec 477, blk D, elev 3699 ft, top anhydrite 2370 ft, top Yates 3140 ft, top brown lime 4160 ft, top solid lime 4597 ft, pb fr sul w 5626-39 to 5380 ft, shot 285 qts nitro 5304-80 ft, used 8000 gals acid, tested small amount 18 gravity oil, dry and abd. Shell's Dora Roberts 2, nw sw ne sec 793, blk D, elev 3691 ft, top anhydrite 2078 ft, dr 4850 ft.

EAST TEXAS

Anderson—John G. Mayo et al's T. Royall-Davey 1, L. McCloud sur, Jarvis area, 12 mi e Palestine, elev 387 ft, fsh 1684 ft. **Angelina**—E. L. Kurth & K. L. McHenry's L. Henderson 1, Wm. White sur, 12 mi e Lufkin, elev 205 ft, dr 4490 ft. **Bowie**—King Oil Corp.'s Nanny Watts 1 (12-ac), G. Brinbee sur, 4 mi w Texarkana, elev 374 ft, massive anhydrite 3942-83 ft, top Hill 4193 ft, top Gloyd 4278 ft, top Dees 4451 ft, sd 4574 ft. **Camp**—Wm. C. McGlothlin et al's Joe Venters 1, S. Wright sur, 2½ mi se Leesburg, elev 381 ft, Pecan chalk 2368-2815 ft, Austin chalk 3718-51 ft, top Woodbine series 4124 ft, top Georgetown 4550 ft, top Paluxy series 5623 ft, top sand 5680 ft, td 5710 ft, may abd. **Cherokee**—Bunn Drl. Co. et al's Callie Bounds 2 (95.9-ac), W. H. Walters sur, 2½ mi se Lone Star, elev 346 ft, td 2215 ft, re-drl crooked hole. John G. Mayo et al's J. M. Travis 1 (640-ac), Thos. Quevado sur, 2 mi se Mount Selman, elev 456 ft, dr 3655 ft. **Dallas**—Mauldin Oil Co.'s W. E. Howell 1 (107-ac), S. Layton sur, 8 mi e Grapevine, sd 1650 ft. Plaza Oil Co.-W. A. Brooks, Jr.'s B. J. Davidson 1 (75-ac), John D. Merchant sur, base Woodbine 1970 ft, top Paluxy 2700 ft, sd 5528 ft. **Delta**—O. W. Killam et al's Delta Farmnng Assn. 1, J. Dollahite sur, 4 mi ne Sulphur Bluff, elev 348 ft, dr 3370 ft. **Gregg**—Humble & Gulf's E. D. Robertson 1 (11.4-ac), M. Mann sur, 4 mi e prod, elev 272 ft, top Georgetown 3341 ft, top Paluxy 4541 ft, first Glen Rose 4876 ft, first anhydrite stringer 5617 ft, massive anhydrite 6214-6532 ft, top Travis Peak 7325 ft, top lower Marine between 9600-30 ft, td 10,284 ft, cem 5½-in cas 9868 ft, pb to 7909 ft, gun-perforated 83 shots 7244-86 ft, showing for high pressure gasser with distillate. **Henderson**—High Point Oil Co.'s Dan Smith 1 (58-ac), F. Brown sur, Tool fault, elev 325 ft, sd to abd 3420 ft. W. S. McGee et al's O. D. Mikeal 1 (76½-ac), A. B. Patton sur, Flag Lake area, elev 369 ft, dry and abd, missed Woodbine sand, td 3235 ft. O'Byrne Bros. et al's J. E. Reese 1 (160-ac), G. Kimbro sur, Flag Lake, elev 359 ft, rig. Peyton Bros. et al's W. W. Carter 1 (5-ac), W. K. Newell sur, Flag Lake area, elev 325 ft, top Woodbine 3014 ft, sand 3062-71 ft, flowed 6 bbls oil per hr 9/64-in choke via 12 shot perforations 3066-70 ft; R. L. Tarkington-Shell 1 (50-ac), W. K. Newell sur, dr 800 ft. Richards & Holloway's Tarkington Bros. 2 (15-ac), W. K. Newell sur, elev 324 ft, dr 2390 ft. The Texas Co.'s I. A. Nolan 2 (280-ac), N. Parsons sur, top Pecan chalk 2125 ft, dr 2600 ft. **Houston**—Humble O&R Co.'s Dailey-Taylor 1 (500-ac), J. G. Thompson sur, A-1021, top Woodbine 5801 ft, top sand 5827 ft, td 5894 ft, testing gas and water; C. C. Hill 1 (326-ac), blk 4, J. L. Reviere sur A-49, lcn. Sun Oil Co.'s R. S. & H. Dailey 2 (1366.7-ac), J. G. Thompson sur A-1021, lcn. **Lamar**—Dahl Bros. & Barr's Lewis-McCuistion 1 (10-ac), R. Russell sur, 1 mi ne Paris, sd 1253 ft. **Leon**—Lone Star Gasoline Co.'s G. W. Lee 2, R. Hunter sur, Buffalo area, rig. **Navarro**—J. O. Griffith et al's R. C. Haynes 1 (110-ac), Able Parsons sur, 4 mi ne Kerens, elev 371 ft, first hole jkd, dr 2580 ft. R. G. Dickson et al's A. H. Swink 1, W. Hudson sur, 3 mi s Richland, dr 310 ft. B. T. Fearis et al's W. Montgomery-The Texas Co. 1 (340-ac), I. Redding sur, 7 mi s Kerens, lcn. Mrs. Jane Robinson et al's Fortson 1, Eli Smith sur, 5 mi ne Corsicana, elev 345 ft, Austin chalk 1346-1585 ft, top Woodbine 2185 ft, sd 2765 ft. Topaz Oil Co.'s M. Mizell 1 (74.1-ac), T. J. Chambers sur, 10 mi ne Corsicana, lcn. **Rusk**—John W. Merritt et al's J. M. Tipps 1, Thos. Uzzell sur, 5 mi n New Salem, elev 367 ft, top Woodbine 3887 ft, pb fr 3983 to 3923 ft, sdo. **Red River**—Daniels et al's J. J. Gaston 1, (657½-ac), J. Guest sur, 2 mi s Detroit, elev 468 ft, sp and sd. Texas Trading Co.'s Southern Pine Lumber Co. 2, D. D. Bruton sur, 12 mi n Clarksville, elev 407 ft, top Georgetown 693 ft, top Paluxy red beds 1025 ft, anhydrite 1751-99 ft, td 2155 ft, dry and abd. Watters et al's J. Phamplin 1, Wm. Moore sur, 3 mi se Kanawha, elev 470 ft, sd 220 ft. C. E. Whitehead et al's R. H. Ringwald 1 (56-ac), A. Moore sur, 1 mi nw Manchester, dr 210 ft. **Smith**—Hunt Oil Co.'s S. H. Bradley 1 (100-ac), Thos. P. Payne sur, A-763, Chapel Hill area, elev 460 ft, Pecan chalk 2803-3231 ft, Austin chalk 3698-3858 ft,top Woodbine 3927 ft, top Georgetown 4400 ft, top Fredericksburg 5360 ft, first anhydrite stringer 6465 ft, top 2nd stringer 6775 ft, massive anhydrite 7015-7259 ft, td 7528 ft, dr froze 8 ft off bottom, then parted at 3881 ft, cemented stem, circulating to revive gas and distillate flow. Combest-Wadworth & Cox (was W. L. Cloud's) D. Kendall 1, John Williams sur, 1¼ mi se Jamestown, co to dd fr 2794 ft. **Van Zandt**—F. A. Richardson et al's B. C. Dodd 1 (80-ac), T. W. Hutchinson sur, 2 mi s Grand Saline, elev 427 ft, sd 4278 ft.

EAST TEXAS BORDER COUNTIES

Marion—Tom Bell's Carrie Moseley 1, D. Lane sur, arr set csg, td. Ark. Fuel Oil Co.'s Wallace Johnson 1, Alexander Johnson sur, dr 1350 ft. **Panola**—Texas Co.'s Claude Adams 1, Thos. Cox sur, 13⅜ in csg 579 ft, 9⅝ in csg 5940 ft, elev 287 ft, top lower Marine 7792 ft, dr 8478 ft, hd sand. Walters et al's Phomplin 1, W. Moore sur, woc 12½ in csg 68 ft. Petroleum Heat & Power Co.'s Frost Lbr. Co. 1, Jno. H. Gibson sur, lcn. J. W. Bird 1, Geo. Gallasty sur, lcn. **Shelby**—C. L. Cope's Pickering Lbr. Co. 1, English sur, rur. Vaughn Prod. Co.'s Pickering Lbr. Co. 1, Brooks sur, mim. Shelby Oil Co.'s Windham 1, A. K. English sur, cored saturation 3397-3422 ft, swabbing oil, td 3422 ft. J. C. Windham 1, nwc Shelbyville townsite, lcn. A. R. Blount's Ethel Lovett 1, block 55, Shelbyville townsite, lcn. Mallard & Locke's (formerly DeArmen & Mallard), W. E. Roller 1, J. Sullins sur, top massive anhydrite 4823 ft, dr 4890 ft. Redditt & Gray's Pickering Lbr. Co. 2, sec 237.8 ac tract, P. J. Loggins sur, sg 4019-25 ft, arr core 4025 ft, black shale. Richards & Holloway's Ashberry 1, G. W. Mitchell sur, owdd, td 3405 ft.

TEXAS GULF COAST

Brazoria—Texas Co.'s Jones 1, sw of Manvel, H. T. & B. No. 64, dr shale 662 ft. **Ft. Bend**—Sam E. Wilson's M. T. Wood 1, Fresno, C. Haywood sur, woc 570 ft. Strake's Dow 1, Sugarland, D. Bright sur, fsh 6521 ft; same operator's Sugarland Industries 2, W. Stafford sur, dr shale 6912 ft. **Galveston**—Sun's Cade 1, Bolivar, A. Dickson sur, sd 8094 ft. **Harris**—Commerce Oil Co.'s Meadowbrook Dev. Co. 1, w of South Houston, J. R. Harris, lcn. Jack Frazier's Houston Deep Water Land 2, s of Deep Water, T. Earle sur, dr shale 6300 ft. O. W. Killam's Dodd 1, Ogburn area, W. C. R. R. No. 12, ru. **Jasper**—J. G. Mayo's Cartwright 1, Legrande-Magnolia Springs area, Legrande sur, dr shale 5815 ft. **Liberty**—Sun's Jordan 1, Batson Prairie area, L. Gedruf sur, woc 1889 ft. Texas Co.'s Page 1, West Hardin area, J. Hanley sur, ru. **Matagorda**—Sun's Robbins 1, n of Citrus Grove, C. H. Vandeveer sur, abn 10,160 ft. **Montgomery**—E. R. Kirkpatrick's Foster Lumber Co. 1, T. & N. O. sec 7, dr shale 1010 ft. **Waller**—David B. McDaniel's Dinkins 1, Spring Creek area, L. Pearsall sur, abn 6500 ft.

ROCKY MOUNTAIN AREA

MONTANA

Carbon—R. C. Tarrant's 1, csl se nw 3-6s-18e, dr 2143 ft. **Fergus**—Baugham & Singley's Skaggs 1, cnw sw 7-15n-20e, dr 1036 ft. **Petroleum**—O. B. Canfield's Government 2, se se ne 21-17n-26e, dr 805 ft. **Yellowstone**—Riverton Oil Co.'s John Fox 1, cel nw ne 14-3s-23e, dr 1821 ft.

NEBRASKA

Sioux—Felmount Oil Corporation's 1, csw ne 22-27n-55w, rur. Union Oil Co. of California's Buckley 1, nwc se se 15-28n-55w, dr 6580 ft.

WYOMING

Carbon—Cunningham Oil Co.'s Union Pacific-Cronberg 1, ne se ne 7-23n-79w, running tubing to complete, td at 2350 ft. **Lincoln**—H. C. Harris' Government 1, se nw nw 23-21n-117w, dr 522 ft. **Natrona**—General Petroleum Corporation's Government 1, nw nw se 21-35n-77w, pumping and testing with td at 8020 ft. **Sublette**—Progressive Oil Co.'s Haddenham 1, cne se 18-28n-113w, dr 520 ft. **Weston**—John Brorby's George 1, sw se nw 12-47n-64w, sd 2080 ft.

125,000 Feet 10¾" O.D.

Forty-Pound Used Wrought Iron Line Pipe with Threads and Couplings. Cleaned. Located Kokomo, Indiana, District.

●

STANDARD OIL FIELD SUPPLY CO.
P. O. BOX 863 HOUSTON, TEXAS

THE FORT WORTH LABORATORIES
Analyses of oil field brines, cores, gas, oil, and minerals. Field gas testing. R. H. Fash, Vice-President; Long distance 138. 833½ Monroe Street, Fort Worth, Texas

PATENTS
Patents, Trade Marks, Copyrights and Infringement Litigation
HARDWAY & CATHEY
428-29-30 Bankers Mortgage Bldg.
Phone Capitol 9756 Houston, Texas

William M. Barret, Inc.
Consulting Geophysicists
Specializing in Magnetic Surveys
Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.
GIDDENS-LANE BUILDING
SHREVEPORT, LOUISIANA

HOARD EXPLORATION COMPANY
Seismograph Surveys
618 Esperson Bldg.
Houston Texas

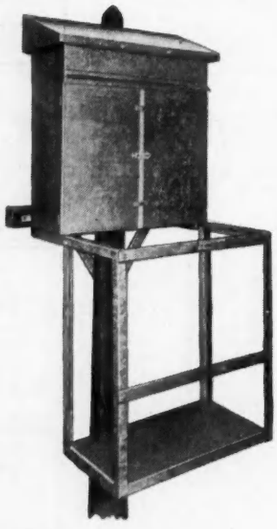
JACK A. SCHLEY
Patent Attorney
(Established 1902)
PATENTS—INFRINGEMENTS—OPINIONS
San Antonio—Washington, D. C.
906-7 SECOND NAT'L BK. BLDG.—HOUSTON
1807-11 TOWER PETROLEUM BLDG.—DALLAS

THE ENGINEERS' SKETCH BOOK—Barber
(Sixth Edition)
If you have studied in Great Britain, you know of it. If you have not studied there you will scarcely believe what follows!
IMAGINE that you are asked to design or find a certain type of gear, valve bearing, automatic cut-off, condensing, cooling or spraying system. Time is limited. Suppose that in twenty minutes you could produce ten or twenty definite, time-tested working plans. Suppose you could do the same on many other similar problems. YOUR ASSOCIATES WOULD CONSIDER YOU A WIZARD!
IMAGINE that you have a book listing and picturing all known mechanical movements and designs.
NOW — STOP IMAGINING!
You can make such a miracle come true!
You can have at your fingertips hundreds of good, practical solutions for "tough" problems which arise daily.
You don't have to depend on your memory and you don't have to go through many books. IT'S ALL IN ONE LOW-PRICED BOOK.
Nearly 3,000 illustrations—No theory—No mathematics
—No general matter — Just actual working sketches.
It will bring you prestige and recognition! It will save you time, money and worry!
ORDER YOUR COPY NOW! — Price $4.25, plus 15c for postage.
GULF PUBLISHING COMPANY : 3301 Buffalo Drive : Houston, Texas

NEW PRODUCTS FOR THE FIELD
Machinery • Tools • Equipment

WEATHERPROOF CABINET
Frank Adam Electric Company

Frank Adam Electric Company, St. Louis, Missouri, announces a new pole-mounting weatherproof cabinet for outdoor meter and transformer housing.



The cabinet proper is made to house meters or transformers—or both. It is weatherproof, rigidly built and provided with two substantial doors that fit snugly against gaskets to assure tight seal when the doors are closed. Internally, the cabinet is fitted with a ⅞-inch cypress instrument-mounting board and is also equipped with adjustable mounting traps to accommodate several styles and sizes of transformers. Screened openings for ventilating are provided under the hood at the top of the cabinets. Water cannot enter through the ventilating openings.

The cabinet can be furnished with or without the platform stand, the latter being especially convenient for workmen's use when mounting and servicing the housed equipment. All parts of the construction are of heavy metal, substantially constructed to withstand severe outdoor service.

GAS BURNER
Natural Gas Equipment, Incorporated

Natural Gas Equipment, Inc., 811 Sterling Building, Houston, has recently announced the new Mid-Continent type N.G.E.-Nelson gas burner for firing oil-field boilers.

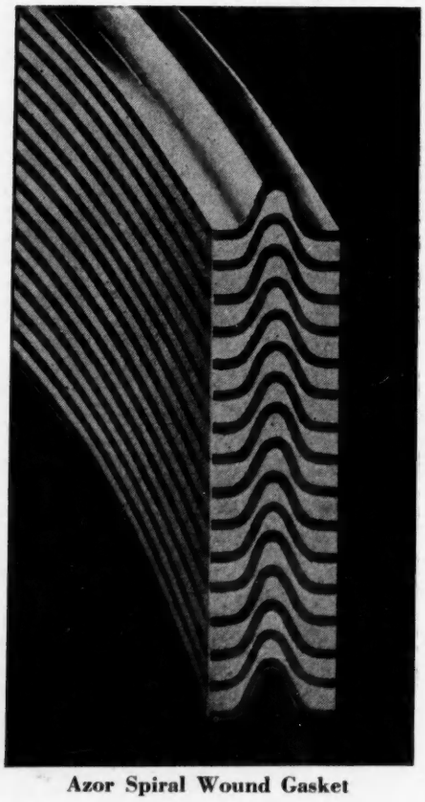
The burner consists essentially of a heavy sheet steel box or frame in which is placed the gas header, burner manifolds, burner and radiants. The gas header is placed within

Mid-Continent N.G.E.-Nelson Gas Burner for firing oil field boilers.

and across the front end of the box and a series of three equally-spaced pipe manifolds extend from the gas header longitudinally across the box. Each of the pipe manifolds supports a row of burners. The individual burners in each row are individually spaced and the corresponding burners in the other rows are lined transversely. A refractory is supported on each burner head within the primary air and fuel mixture outlet by means of lugs cast integrally with the burner. A course of brick around and against the fire box sheets is placed so as to shut off any air infiltration. The construction of the burner is such that it can be manifolded to suit every type and size of oil field boiler, without alteration to the boiler. The burner is designed to operate over a pressure range up to 5 pounds per square inch and will produce any capacity of which the boiler is capable of developing. The entire installation is quickly and easily made, the arrangement of burner heads and refractories permits burning the gas in a restricted and localized zone, so designed that a condition of incandescence is maintained.

SPIRAL WOUND GASKET
Azor Corporation

Azor Corporation, Newark, New Jersey, announces a spirally-wound metal-asbestos gasket of improved construction. It is claimed this "Flexiwound" gasket combines great mechanical strength, high resistance to corrosion and extreme temperatures, proper compressibility with relatively light bolting and resilience that is unequalled.



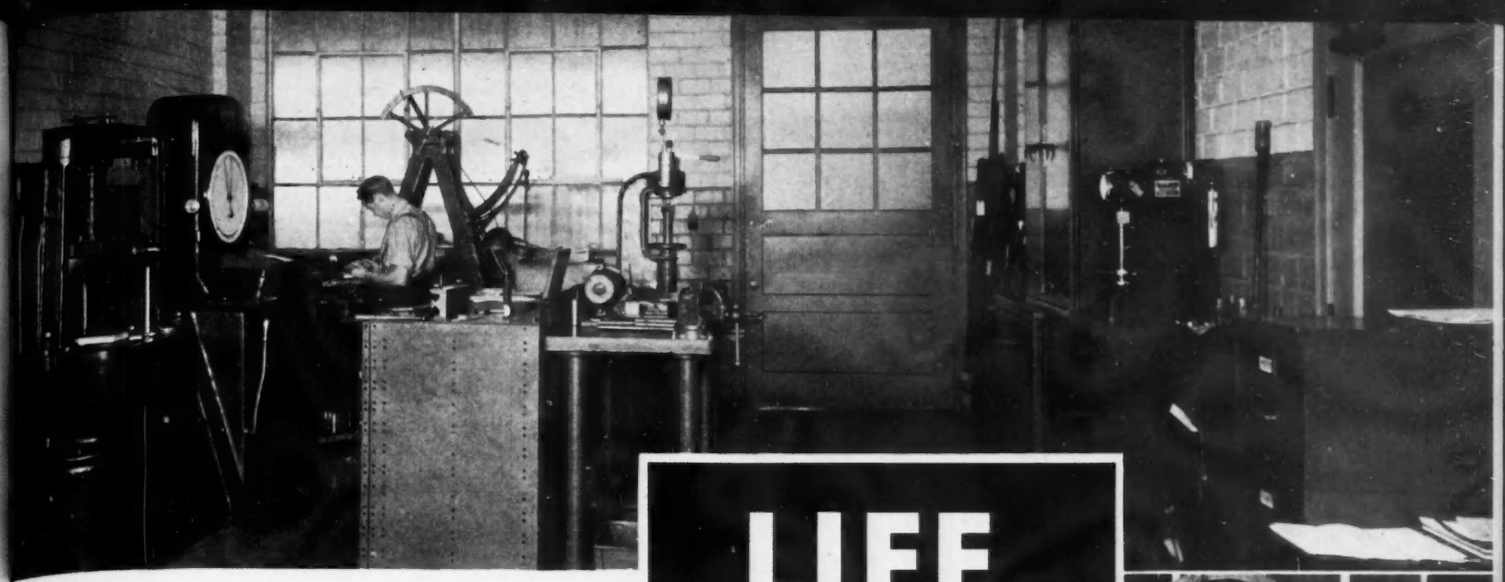
Azor Spiral Wound Gasket

The fact that maximum resiliency is retained for long periods of use, plus the ruggedness of spiral-wound construction, the makers claim, gives "Flexiwound" gaskets remarkably long life. In many, or perhaps most services, "Flexiwound" may be used a number of times with perfect safety and substantial savings in gasket costs. General purpose gaskets, recommended for use in all standard or special flanges, for boiler tube caps, hand-holes and manholes.

DRILLING ENGINE
Waukesha Motor Company

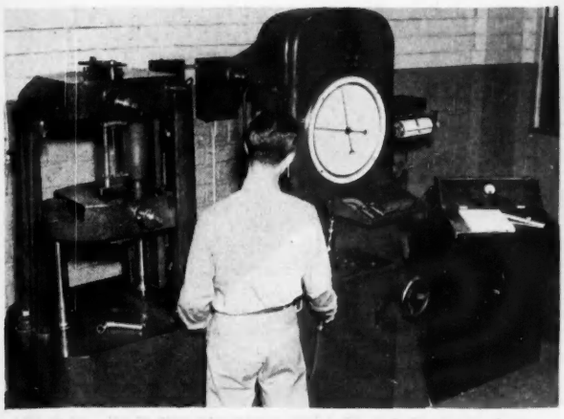
Waukesha Motor Company, Waukesha, Wisconsin, announces a new oil-field drilling engine, a 210- to 255-horsepower Hesselman oil engine that may be quickly and easily converted to burn natural gas.

Known as model NKH, this engine his 6 cylinders of 7-inch bore and 8½-inch stroke, and is governed for continuous duty at 1000 r.p.m. The engine without accessories delivers 225 horsepower full load at this speed, with a reserve output of 235 horsepower for intermittent duty at 1050 r.p.m. The full load torque is 1185 pounds-feet at 1000



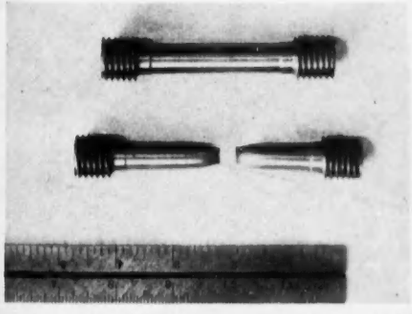
1. General view of Axelson chemical and physical testing laboratory.

LIFE TESTS ON AXELSON SUCKER RODS



2. Olsen machine for testing tensile strength, elasticity and related properties. Capacity of 100,000 pounds.

3. Olsen Brinell machine for testing hardness by forcing small test ball into flattened area on specimen.

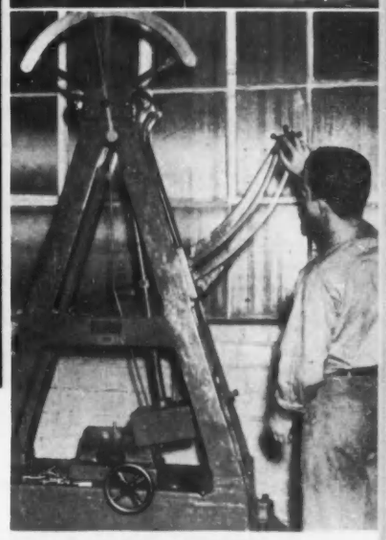


4. Test pieces, machined from forged pins, before and after fracture in tensile testing machine.

No physical examination of a human being to determine his fitness for life insurance is as thorough, as comprehensive and as drastic as the tests given to every heat of Axelson Sucker Rod Steel. When these life tests are recorded, they show what can be expected in the actual performance of the rods as to strength under load, hardness, elasticity, impact, fatigue, corrosion and other conditions.

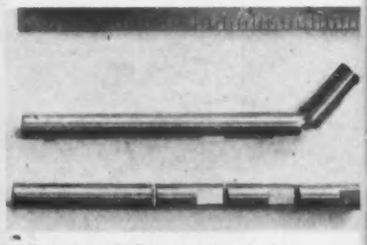
The Axelson Testing Laboratory is the vestibule through which all materials used in Axelson products must pass for rigid, ceaseless examinations. No doctor is as ruthless in rejecting a doubtful applicant for insurance as the Axelson examiners are in rejecting materials that do not come well above the established minimum specification requirements.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY



5. Olsen Izod machine for testing resistance of specimen to shock or impact.

6. Toughness proved by blow of 120 foot-pounds delivered to notched specimen.



7. Test pieces before and after Izod impact indicating shock resistance.

AXELSON

DEEP WELL PLUNGER PUMPS

SUCKER RODS

Axelson Manufacturing Company, P. O. Box 98, Vernon Station, Los Angeles • St. Louis • 50 Church Street, New York • Tulsa

Mid-Continent and Eastern Distributor: Frick-Reid Supply Corporation • *Rocky Mountain Distributor:* Great Northern Tool & Supply Company.

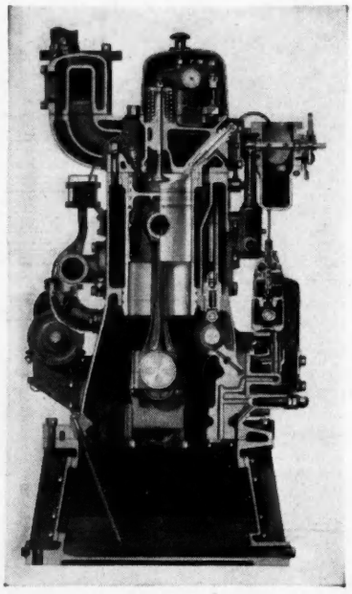
r.p.m., while the maximum torque, 1250 pounds-feet, is reached at 600 r.p.m. This increasing torque as the engine pulls down under load is especially useful in operations that impose sudden momentary overloads, for instead of stalling as a constant torque engine, it pulls through without seeming effort.

Many new features have been incorporated in this new engine. The base type oil pan has a large oil reservoir, with big inspection doors on both sides, and a heavy section hold-down flange. Mounted on this sturdy base is the crankcase, a single gray iron casting integral with the water jacket of the cylinder block. Cylinders are "wet sleeves" inserted from above, and made of alloy iron, a combination of chromium and molybdenum. Two rubber rings with tell-tale bleeders seal the lower end of each cylinder. Pistons are cast iron, heavily ribbed with four tapered rings, all located above the bearing bosses. The crankshaft, of S.A.E. 1045 heat-treated steel, has seven 3¾-inch main bearings, all ground and polished and running in steel-backed babbitt-lined shells. The bearing bridges in the main case casting from sturdy tie-walls, and are heavily ribbed and braced. The caps, similarly ribbed, are held by heat-treated nickel-steel studs anchored in the case. Connecting rods are of S.A.E. 1045 heat-treated steel. The large end is ground to receive steel-backed babbitt-lined bushings. The finished rods are matched in sets to ¼-ounce. The piston floats in hard bronze bushing.

The lubricating system has been improved from a maintenance standpoint beyond anything previously attempted except in the largest engines, by the adoption of a very large filter which increases the life between servicing to more than the recommended life of the oil itself. Thus filter elements need no attention between oil changes, and the time between changes is also lengthened. Full pressure oiling, by positive gear type pump, to all bearings, shafts, gears and valve rocker arms keeps every moving part supplied with ample lubrication at all times. Oil inlet is surrounded by vertical strainer and oil level equalizer which prevents air-bound lines and insures lubrication at all oil levels and temperatures.

A Bosch model APE-6 fuel pump is provided to make the fuel system adequate for the high power output of the new engine. Only a few simple changes are necessary to convert this engine to gas fuel. Major parts, such as heads, pistons and rods remain the same. All that is needed is to add a good gas carburetor system to the air intake, remove the floating member of the fuel pump coupling which remains idle, and replace the injection nozzles with screw plugs which fit the holes. The whole job takes less than an hour.

The cooling system employs an independently mounted radiator. Top and bottom cast iron tanks are supported by substantial steel channel-iron uprights. Front is protected by ⅛-inch wire guard of ¾-inch mesh, and the fan at the rear is also protected by a wire guard to prevent accident or injury to the operator.

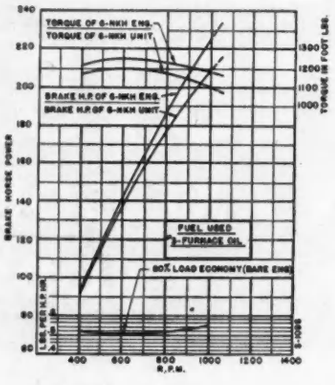


The New Waukesha-Hesselman Drilling Unit, Model NKH, for fuel oil or gas, in cross section.

The manufacturer guarantees that production engines, after a run to reduce the friction to the same as that on the laboratory standard, will develop 95 percent of the horsepower shown. Curves are corrected to 29.92 inches of mercury, (sea level, barometer reading) and a temperature of 60°F.

Continuous Service—For continuous full load service, use a load factor of not more than 80 percent of the power shown on the curve. Horsepower shown was obtained with the following equipment: Ignition—Mallory oil engine system. Fan—none. Electric generator—none. Air cleaners — none. Muffler—none.

Permissible Speeds—Governors will be set to carry full load at 1050 rpm. maximum for continuous stationary duty. No load settings will be 1125 rpm. maximum for intermittent stationary duty and for shovels, cranes, and similar power driven devices.



Performance Curve of the new NKH Waukesha-Hesselman Engine and Unit.

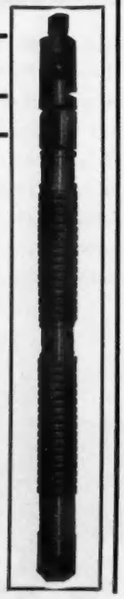
How to Whip

SAND TROUBLES

SPECIFY AND USE

B-M-W Tex Type

WORKING VALVES



Ideal for Common Barrels. For insert pumps use Tex Type Plunger Fittings.

The many Composition Rings shown are separated by metal washers.

In effect it is a grooved seal plunger, made from rubber and fabric, which readily adapts itself to the tube in which it works.

More Fluid Is Handled

1. No appreciable slippage.
2. Very little frictional drag.
3. Exceptionally long runs are obtained because this valve can "take it."

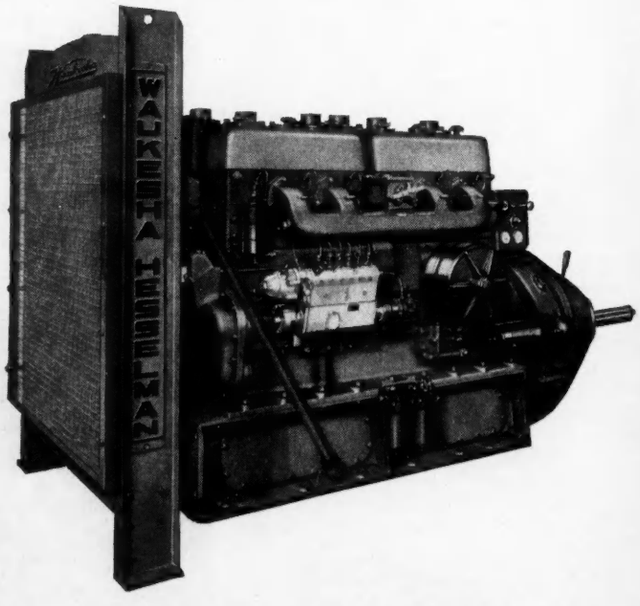
WHO SELLS THEM?

Leading B-M-W Products are obtainable at supply stores: ● TEX TYPE Plunger Fittings and Valves; ● ADMORE Insert Pump Anchors; ● NEILSON Tools (Safety Sucker Rod Hooks, Tubing Hooks, Rod Elevators, Sucker Rod Sockets, etc.); ● BALLS and SEATS (made for every pumping service); ● ADMORE Liner Barrels; and ● COLLINS Belt Clamps.

BRADFORD MOTOR WORKS INC

OIL WELL SUPPLIES

BRADFORD, PA. — TULSA, OKLA.



The new Waukesha-Hesselman Drilling Unit, Model NKH, 210 to 225 hp.

This Week with the Industry's EQUIPMENT SUPPLIERS

Jones & Laughlin Steel Corp. Opens Wire Rope Division

Completion of a modern wire rope plant at Muncy, Lycoming County, Pennsylvania, as an additional unit of its expansion and development program is announced by Jones & Laughlin Steel Corporation, Pittsburgh.

ROBERT GILMORE
General Manager Gilmore Wire Rope Division, Jones & Laughlin Steel Corporation.

This new plant, to be known as Gilmore Wire Rope Division of Jones & Laughlin Steel Corporation, will begin operation about July 1, 1938. It marks the entry of the corporation into a new line of finished products including wire rope for oil country use, for general construction purposes and for industrial application.

The fabrication and sale of the products of the new plant are to be under the direction and supervision of Robert Gilmore, general manager, whose offices will be at Muncy, Pennsylvania. His entire business experience has been in the wire rope field.

William Mehler Named Western Manager for Murphy Diesel

Murphy Diesel Company, Ltd., of Milwaukee, Wisconsin, has appointed William Mehler its western district manager.

Mehler has long experience in the Diesel field, and was at one time connected with one of the major fire apparatus builders, who also build Diesels. He served this company for 7 years in the capacity of field sales engineer, during which time he covered all the United States and several foreign countries.

He left this company to go into the employ of a large motor products company in the capacity of district sales engineer.

He has behind him 20 years experience in the gasoline and Diesel engine fields, covering both building and sales engineering.

Mehler will be located at 255-10th Street, San Francisco, California.

Lamons made vice president of Sterling Packing and Gasket

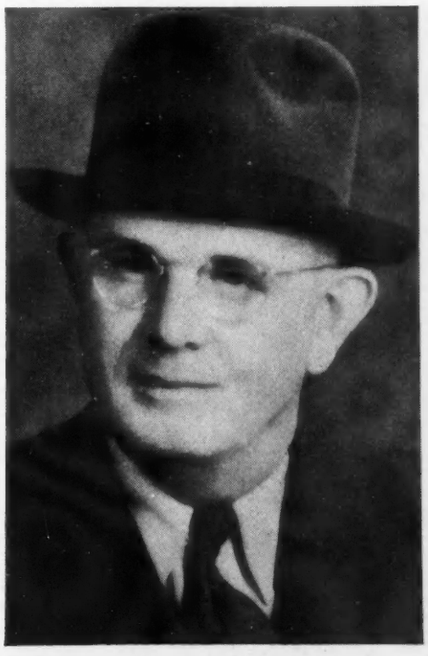
W. A. Lamons, formerly sales manager of Sterling Packing and Gasket Company, Inc., Houston, Texas, has been promoted to vice president and general manager. Lamons has had 13 years experience catering to the oil field trade in Texas, Oklahoma, Kansas, and New Mexico.

Gaso Men Touring Illinois and Indiana

L. D. Armstrong, secretary-treasurer, and H. A. Wienecke, Jr., sales engineer of Gaso Pump & Burner Manufacturing Company, Tulsa, are making a tour of the Illinois and Indiana oil fields inspecting the Gaso equipment in service in that territory.

Jensen Named East Texas Manager for Ideco

E. H. Jensen has been appointed manager of the East Texas Division of International Derrick & Equipment Company with headquarters at Kilgore. Previously he was in the Mid-Continent office at Tulsa. The change came about following the transfer of John Tidbell, former division manager in East Texas, to the Dallas office in charge of geared unit division for the Mid-Continent area.



E. H. JENSEN
Manager for International Derrick & Equipment Company in East Texas.

SIMPLEX JACKS

Emergency Jacks
Riggers' Jacks
Pull Rod Jacks
and Jacks for every
Oil Field Need

No. 310

STOCKED BY LEADING SUPPLY HOUSES
TEMPLETON, KENLY & CO., CHICAGO

Standco
NO-SMOKE
STANDCO BRAKE LINING
Nothing novel—no bunk—but it gets the job done without scoring brake rims. See page 1940, Composite Catalog.
Standard Brake Lining Co.

YOU DRILL . . . WE'LL FURNISH the MACHINERY and DRILL PIPE . . .
All thoroughly reconditioned in our own shop . . . for SALE or RENTALS. Call or wire for prices.
NEAL LUCEY COMPANY
2107 QUITMAN ST.-PRESTON 9614
HOUSTON, TEXAS

TAGS
for your every need
A complete line of shipping and merchandising tag . . . Including those for your special requirements . . . Prompt personal service that saves you time and money.
ALL KINDS OF BUSINESS ENVELOPES . . . We manufacture and print envelopes of every description—built to give maximum utility, security and economy.
GULF
ENVELOPE CO.
617 Brooks St. P.O. Box 164
Phone Fairfax 4171

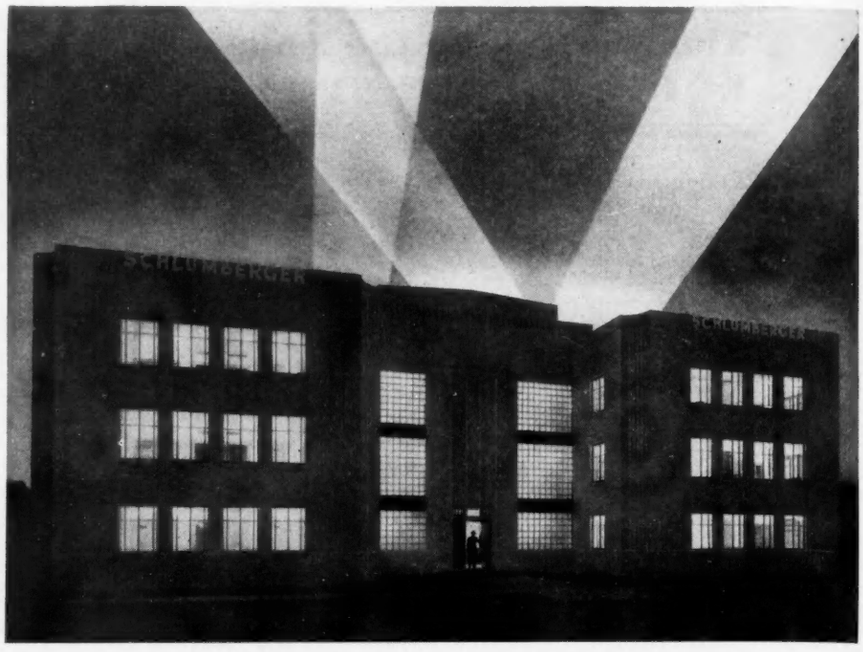
J. S. Mellon of Byron Jackson Dies Suddenly at Los Angeles

J. S. Mellon in charge of foreign sales department of Byron Jackson Company, Los Angeles, died Sunday night, June 26, from an attack of acute indigestion. Jack Mellon had been with Byron Jackson Company for 10 years and prior to that time was sales manager of the Dunn Manufacturing Company for a number of years. He has made numerous trips abroad and had a wide acquaintance among oil men in every foreign country as well as in the United States.

Mellon had been a resident of Los Angeles for 20 years, was a Thirty-Second Degree Mason and member of American Legion. He is survived by his widow, Ann Caswell Mellon, a daughter, Helen Louise, and a sister, Mrs. Edith Carns.

L. H. Gilmer Company Appoints R. V. Stout District Manager

L. H. Gilmer Company announces the appointment of R. V. Stout as district manager, Oil Field Division, for Kansas. Stout has been identified with the selling of oil field production equipment for 13 years, most recently with Lucey Products Corporation, and enjoys acquaintance throughout the Mid-Continent and Gulf Coast fields. His headquarters are at Wichita.



Schlumberger Well Surveying Corporation's new headquarters building at 2720 Leeland Avenue, Houston, Texas, which was formally opened June 25. Several hundred friends and clients of the Schlumberger organization attended "open house" to help celebrate the occasion. The new building, which contains 40,000 square feet of floor space, all air conditioned, is ultra-modern in every respect.

Cast Iron Pipe Traveling Demonstration Unit Finished

American Cast Iron Pipe Company, Birmingham, Alabama, has completed a traveling demonstration unit that is now carrying the story of modern cast iron pipe and fittings throughout all sales territories of the company.

The truck is outfitted with samples of Mono-Cast Centrifugal pipe, various pipe joints, fittings and other specialties as produced at Acipco, together with descriptive literature and large illustrations of actual installations. The demonstrations lay particular emphasis on special joints that have been developed to meet the demands of superservice, it is stated.

Complete itinerary has not been announced, but present plans are for the truck demonstrations to begin in the Kansas City territory, probably at Tulsa, Oklahoma. After a 60-day tour of Oklahoma, Kansas, Nebraska, Missouri and Iowa, the truck will spend 30 days in Minnesota and Wisconsin; approximately 60 days in Michigan, Ohio, Indiana, and Illinois; 60 to 75 days in Texas, Arkansas and western Louisiana; and 60 to 90 days in southern territory, principally Tennessee, Mississippi, eastern Louisiana, Alabama, Georgia, Florida, South and North Carolina and Kentucky.

An Acipco representative accompanies the display truck on its tour of his territory, and this representative endeavors to contact every pipe user on the truck's itinerary. The visit of the truck to individual communities is announced by a card mailed several days in advance of the truck's arrival.

The truck also will visit engineering colleges for the purpose of showing students the various applications of cast iron pipe. Engineering clubs or other groups wishing to arrange a special meeting in connection with the visit to its community of the truck are invited to write Acipco headquarters at Birmingham, Alabama.

Lufkin Foundry & Machine Company Officials Sail for Europe

W. C. Trout, president, and A. V. Simonson, export manager for Lufkin Foundry & Machine Company, Lufkin, Texas, have recently sailed for Europe, where they will visit Holland, Germany, France, England and Italy before returning.

Struthers-Wells Titusville Names California Representative

Struthers-Wells Titusville Corporation—with plants at Titusville and Warren, Pennsylvania—has announced the appointment of Hyman Ledeen, 747 Warehouse Street, Los Angeles, California, as its sales representative in the lower part of the state of California, the states of Arizona and New Mexico and the western part of the state of Texas.

Well Equipment to Hold Open House on July 9

Well Equipment Manufacturing Corporation is to celebrate the opening of its new building and the fourth anniversary of "Weco" service, by holding open house on Saturday, July 9, from 1 to 6 p. m. The address is 2025 Semmes Street, Houston. Lunch, refreshments and entertainment are promised.

Squeaks from the Bull Wheel

Followed to a Letter

"Do you remember, Doc, when you cured my rheumatism a couple of years ago and told me to avoid damp places?"

"Yes, certainly, why?"

"Well, I was just wondering if it would be all right for me to take a bath now?"

Fellow Sufferer

"Well, what is your alibi for speeding 50 miles an hour?"

"I had just heard, your honor, that the ladies of my wife's church were giving a rummage sale, and I was hurrying home to save my other pair of pants."

"Case dismissed."

"A Rose—"

What's the difference between a dole and relief?

About the same as between a job and a position.

A Prophet

Kipling's "Recessional" is a great poem.

Wonderful, but how did he know Recession was coming?

Declined With Thanks

Press Agent—Say, there's a bunch of people outside waiting to see you. Among them is a bishop who says he married you some time ago.

Film Star—Gee, I'm practically certain I never married a bishop.

Six Feet Down and Six Feet Up

A lawyer said to a doctor witness: "Doctors make mistakes sometimes, don't they?"

"Just as lawyers do sometimes," was the reply.

"But doctors' mistakes are buried six feet under ground," persisted the lawyer.

"Yes," agreed the doctor, "and lawyer's mistakes oftentimes swing six feet in the air."

At the Zoo

"Johnny, what is that?"

"I don't know."

"What does your mother call your father?"

"Don't tell me that's a louse!"

Phonettics

"Long distance! I want to place a call to Damariscotta."

"How do you spell it, please?"

"Shucks, lady, if I could spell it, I'd write."

A Mystery

Bill, if you had five bucks in your pocket, what would you do?

Check up to find out whose pants I had on.

That Kind of a Dog

"What are you doing with all those cuspidors, Deacon?" asked a friend.

"I'm talking them home for my dog."

"What kind of a dog have you?"

"Spitz."

A Thrill

"Now I see that rubber glass is a new chemical sensation."

"Yes, and I'm looking forward to watching the cook catch a pitcher of water on the second bounce."

Not Needed

Mirandy, surrounded by her brood of pickaninnies, was talking to the spinster settlement worker, "Yas'm, birth control am all right for youall but me, Ah's married an' doan need it."

Calamity

"It was terrible," said Mrs. Murphy. "There were 27 Swedes and an Irishman killed in the wreck."

"Indeed," said Mrs. Grogan. "The poor man."

Geology

"Yes, the inside of our earth is a molten mass of rock and flame."

"Ain't that hell!"

Times Change

In days of old when nights were cold,
It took two fleeces from the fold
To dress a lady fair.
But in these days of jazz and bob,
A little silk worm does the job
With time galore to spare.

Certainly

"Is your baby a boy or a girl?"

"Of course, what else could it be?"

Also Parks

"There are lots of couples who don't pet in parked cars."

"Yes, the woods are full of them."

Chorus

"Have you ever had any stage experience?"

"Yeah, I had my leg in a cast once."

Modern Kids

"What did you and Joe talk about last night, daughter, that kept you so quiet and interested in there in the dark?"

"Oh, we talked about things, father, that young men and young women wouldn't have dreamed of discussing fifty years ago."

"What, for instance?"

"Airplanes and radios."

Worth It

"A woman can make a fool out of a man in ten minutes."

"Ah, yes, but think of those ten minutes!"

Prorated

The visitor at the country place had to sleep with the five-year-old son of the host. As they retired, Johnny knelt quietly at the bedside. Not to be outdone or set a bad example, the visitor did likewise.

Instantly Johnny jumped up and with a horrified expression on his face, yelled at the grown-up: "I'll tell my mama on you; there's only one and it's on my side.

Not Fit to Hear!

He had been to a stag dinner and his wife wanted to hear all about it when he got home.

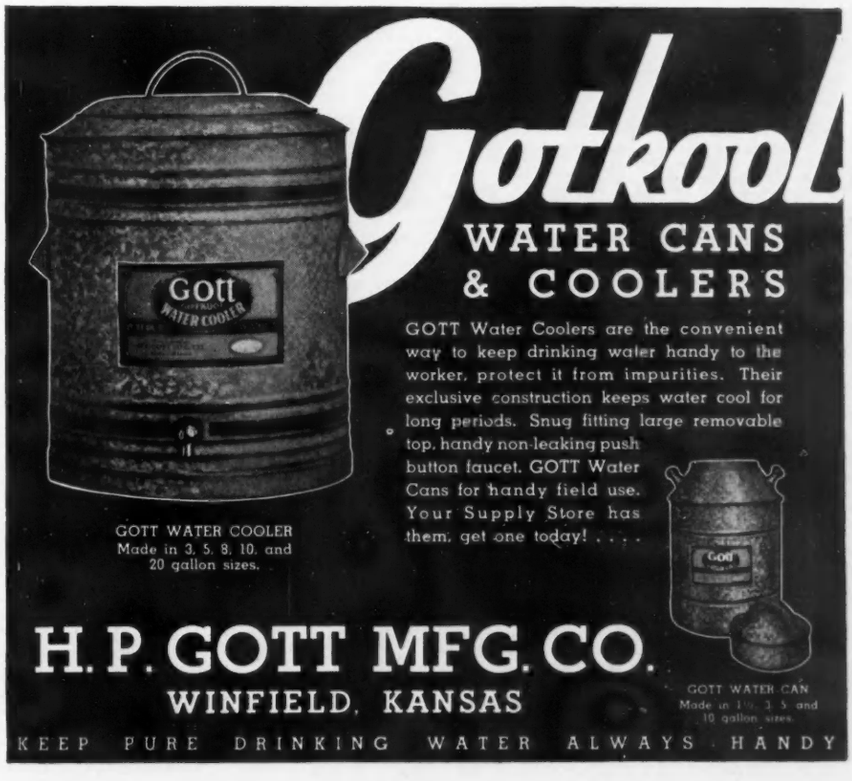
"Well," he said, "one rather odd thing occurred. Jim Blankton left the table because some fellow told a story he didn't approve."

"How noble of him," exclaimed the wife, "and what was the story, John?"

For the Wars

Don't you think Europe is a regular tinder-box?

It must be; my husband is willing to have me go abroad this year.


Gotkool
WATER CANS
& COOLERS
GOTT Water Coolers are the convenient way to keep drinking water handy to the worker, protect it from impurities. Their exclusive construction keeps water cool for long periods. Snug fitting large removable top, handy non-leaking push button faucet. GOTT Water Cans for handy field use. Your Supply Store has them; get one today! . . . .
Gott
WATER COOLER
GOTT WATER COOLER
Made in 3, 5, 8, 10, and 20 gallon sizes.
GOTT WATER CAN
H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

INDEX TO ADVERTISERS

	Page
J. S. Abercrombie Co.	—
Abercrombie Pump Co.	4
Ajax Iron Works	—
Allsteel Products Manufacturing Co.	—
Alten's Foundry & Machine Works	—
Aluminum Company of America	—
American Airlines, Inc.	—
American Assn. of Petroleum Geologists	74
American Cable Division	Second Cover
American Cast Iron Pipe Co.	—
American Chain & Cable Co.	Second Cover
American Hammered Piston Ring Division of Koppers Co.	—
American Iron & Machine Works Co.	—
American Lubricator Co.	—
American Meter Co.	—
American Roller Bearing Co.	—
American Sand-Banum Co.	—
American Steel & Wire Co.	—
Athey Truss Wheel Co.	—
Atlas Ball Co.	4
Atlas Supply Co.	—
Axelson Manufacturing Co.	77
Baash-Ross Tool Co.	—
The Babcock & Wilcox Tube Co.	—
Baker Oil Tools, Inc.	3
Baldwin-Duckworth Chain Corp.	—
Bantam Bearings Corp.	—
Baroid Sales Co.	—
William M. Barret, Inc.	75
Bartlett-Hayward Division of Koppers Co.	—
Beaumont Iron Works Co.	—
Bethlehem Steel Co.	—
Black, Sivalls & Bryson	—
Blackstone Hotel	—
Braden Steel Corp.	—
Bradford Motor Works	78
The Brance-Krachy Co.	—
The Brewster Co.	29
The Bridgeport Machine Co.	—
Broderick & Bascom Rope Co.	—
Buckeye Traction Ditcher Co.	—
The Buda Co.	—
Bull-Stewart Equipment Co.	—
A. M. Byers Co.	—
Byron Jackson Co.	—
Jo H. Cable	—
Cameron Iron Works	—
Carnegie-Illinois Steel Corp.	—
J. I. Case Co.	69
Caterpillar Tractor Co.	—
The Cavins Co.	—
Chain Belt Co.	—
Chiksan Oil Tool Co.	—
Clark Machine Co.	—
Climax Molybdenum Co.	—
Columbian Steel Tank Co.	—
Continental Oil Co.	—
The Continental Supply Co.	—
Fred E. Cooper Co.	Third Cover
The Cooper-Bessemer Corp.	—
Crane Co.	35
Cummins Engine Co.	—
W. H. Curtin Co.	—
Darling Valve & Manufacturing Co.	—
The Dayton Rubber Mfg. Co.	—
Deckard Manufacturing Co.	—
Dedman Foundry & Mach. Co.	—
DeWitt Operated Hotels	—
Diamond Chain & Manufacturing Co.	—
W. S. Dickey Clay Manufacturing Co.	—
Dowell Incorporated	10
S. R. Dresser Manufacturing Co.	—
E. I. du Pont de Nemours & Co.	—
Eastman Oil Well Survey Co.	—
Economy Electric Lantern Co.	—
Elliott Core Drilling Co.	—
Elliott Manufacturing Co.	—
The Fafnir Bearing Co.	—
Geo. E. Failing Supply Co.	—
First National Bank, Houston	—
First National Bank & Trust Co. of Tulsa	—
Edwin H. Fitler Co.	—
Fluid Packed Pump Company	—
Foote Bros. Gear & Machine Corp.	—
Ford Motor Co.	—
Fort Worth Clearing House Association	—
The Fort Worth Laboratories	75
The Benjamin Franklin Hotel	—
Franks Manufacturing Corp.	—
Frick-Reid Supply Corp.	—
Gardner-Denver Co.	—
The Garlock Packing Co.	—
Gas Lift Corp.	—
Gaso Pump & Burner Manufacturing Co.	—
General Electric Co.	—
General Motors Corp.	—
General Power Co.	—
Geological Scientific Service Co.	52
Geophysical Service, Inc.	—
H. P. Gott Manufacturing Co.	81
Grant Oil Tool Co.	—
Gray Tool Co.	—
Green Head Bit & Supply Co.	—
The Guiberson Corp.	37
Gulf Coast Machine & Supply Co.	—
Gulf Envelope Co.	79
Gulf Publishing Co.	8
Gulf States Utilities	—
Gustin-Bacon Co.	—
Halliburton Oil Well Cementing Co.	First Cover
Hardway & Cathey	75
Harnischfeger Corp.	—
Haynes Stellite Co.	—
Hazard Wire Rope Co.	—
C. M. Heeter, Sons & Co.	—
The Hercules Power Co.	—
Hercules Supply Co.	—
Hoard Exploration Co.	75
The Chas. N. Hough Manufacturing Co.	—
Houston Ready-Cut House Co.	—
Hughes Tool Co.	Fourth Cover
Humble Oil & Refining Co.	—
Hunt Tool Co.	—
Hyatt Bearings Division	—
Hydrauger Corp.	—
Independent Exploration Co.	—
The Inferno Co.	70
Ingersoll-Rand Co.	—
International Derrick & Equipment Co.	—
International Harvester Co.	—
The International Nickel Co.	—
International Petroleum Exposition	—
International Supply Co.	—
Jarecki Manufacturing Co.	—
Jeffrey Manufacturing Co.	—
Jensen Brothers Manufacturing Co.	—
Johns-Manville	—
The S. M. Jones Co.	—
Jones & Laughlin Steel Corp.	—
The Kennedy Valve Manufacturing Co.	—
Kerotest Manufacturing Co.	—
Kesler Manufacturing Co.	—
Keuffel and Esser Co.	—
Kinzbach Tool Co.	—
Koppers Co.	—
Laminated Shim Co.	—
Landis Machine Co.	—
Lane-Wells Co.	—
Larkin Packer Co.	—
The Layne & Bowler Co.	—
Lee Rubber and Tire Corp.	—
LeRoi Co.	—
A. Leschen & Sons Rope Co.	—
The Lincoln Electric Co.	5
Link Belt Co.	—
Lone Star Cement Corp.	—
Lord Baltimore Hotel	—
Lucey Boiler & Manufacturing Co.	—
Neal Lucey Co.	79
Ludlow Valve Manufacturing Co.	—
Lufkin Foundry & Machine Co.	—
MacClatchie Manufacturing Co.	—
MacWhyte Co.	—
D. S. Mair Machinery Corp.	—
Maloney Tank Manufacturing Co.	—
Manhattan Rubber Division	—
Martin-Decker Corp.	73
McKissick Products Corp.	—
The Medart Co.	—
Merco Nordstrom Valve Co.	—
Merla Tool Co.	—
Metric Metal Works	—
Miller Sand Pump Co.	—
Mission Manufacturing Co.	—
Lee C. Moore & Co.	—
Morse Chain Co.	—
M & V Tank Co.	—
U. C. Murcell, Inc.	—
Murray Rubber Co.	—
Hotel McAlpin	—
National Bank of Tulsa	—
National Lead Co.	—
The National Supply Co.	25
National Tube Co.	—
Naylor Pipe Co.	—
Hotel New Weston	—
Norvell-Wilder Supply Co.	—
Walter O'Bannon Co.	—
O.C.S. Manufacturing Co.	—
Oil Center Tool Co.	—
Oil City Brass Works	—
Oil Well Improvements Co.	—
Oil Well Supply Co.	—
Otis Pressure Control, Inc.	—
Pacific Pump Co.	31
The Parkersburg Rig & Reel Co.	12
Patterson-Ballagh Corp.	71
Pelican Well Tool & Supply Co.	65
Petroleum Electric Power Club	—
Petroleum Rectifying Co. of California	—
Petty Geophysical Engineering Co.	—
Hotel Philadelphian	—
Pittsburgh Equitable Meter Co.	—
Pittsburgh Steel Co.	—
Hotel Pittsburgher	—
Plowden Supply Co.	—
Pyramid Manufacturing Co.	—
Raybestos-Manhattan	—
R-F Electrical Manufacturing Co.	—
Reading-Pratt & Cady Co.	—
Rector Well Equipment Co.	—
Reda Pump Co.	—
Reed Roller Bit Co.	9
The Republic Rubber Co.	—
Republic Steel Corp.	—
The Rice Hotel	—
The Ridge Tool Co.	—
Rollway Bearing Co.	—
Jack A. Schley	75
Schlumberger Well Surveying Corp.	33
Scivally Bros.	—
Security Engineering Co.	—
Seismograph Service Corp.	—
Shaffer Tool Works	—
Shell	—
SKF Industries, Inc.	6
A. O. Smith Corp.	—
E. M. Smith Co.	—
Howard Smith Co.	—
The Sonner Burner Co.	—
South Chester Tube Co.	—
Southern Engine & Pump Co.	—
Southern Pacific Lines	—
Hotel Southland	—
Spang & Co.	—
Spang Chalfant, Inc.	—
Sperry-Sun Well Surveying Co.	—
Standard Brake Lining Co.	79
Standard Oil Field Supply Co.	75
Standard Pressed Steel Co.	—
Stanley Tools	—
Star Drilling Machine Co.	—
Sterling Engine Co.	—
Stevens Hotel	—
Templeton, Kenly & Co.	79
Texas Electric Steel Casting Co.	7
Texas Iron Works	—
Texas Steel Co.	—
Thermoid Rubber, Division of Thermoid Company	—
Thornhill-Craver Co.	—
Thornton Tandem Co.	—
The Timken Roller Bearing Co.	—
The Titusville Iron Works Co.	—
Tretolite Co.	—
Trinity Portland Cement Co.	—
Union Carbide & Carbon Corp.	—
Union Wire Rope Co.	—
Unit Rig & Equipment Co.	—
United States Rubber Co.	—
United States Steel Corp.	—
Universal Atlas Cement Co.	—
Wailes Dove-Hermiston Corp.	—
Warner & Swasey Co.	—
The Watson-Stillman Co.	74
Waukesha Motor Co.	—
Westinghouse Electric & Mfg. Co.	—
Wheeling Machine Products Co.	—
Wickwire Spencer Steel Co.	—
J. H. Williams & Co.	—
Wilson Manufacturing Co.	—
Wilson Supply Co.	—
Worthington Pump & Machinery Corp.	—
Young Engine Corp.	—
Young Radiator Co.	—
Youngstown Sheet & Tube Co.	23
Zingery Oil Map Co.	—